









BIBLIOGRAPHY OF  
SOIL SCIENCE



BIBLIOGRAPHY of  
SOIL SCIENCE, FERTILIZERS  
and GENERAL AGRONOMY  
1940-1944



IMPERIAL BUREAU OF SOIL SCIENCE  
HARPENDEN  
ENGLAND  
1946

MADE AND PRINTED IN GREAT BRITAIN  
BY THE HERALD PRINTING WORKS  
YORK AND LONDON

## CONTENTS

	PAGE
PREFACE ... ..	2
INDEX TO CLASSIFICATION NUMBERS ... ..	3
MAIN BIBLIOGRAPHY ... ..	17
GEOGRAPHICAL BIBLIOGRAPHY ... ..	355
LIST OF ABBREVIATIONS OF JOURNALS AND PERIODICALS ... ..	406
AUTHOR INDEX ... ..	445
SUBJECT INDEX ... ..	499

## PREFACE

This volume of the Bibliography of Soil Science covers four years—one year more than the period covered by each of the three earlier volumes. Owing to war conditions, however, the size of the Bibliography is about the same. Inevitably, some papers will have been omitted. It will be noticed that a disproportionately large number of papers comes from the United States and the British Empire, these being areas with which the Bureau was able to maintain normal communications throughout the war years. Access to literature published elsewhere was often largely a matter of chance. Nevertheless it is believed that most of the more important of the reduced number of papers published from Western Europe while it was under German domination are included. A considerable number of papers published in 1939 is also included, as owing to war conditions these were not received by the Bureau until too late for inclusion in the 1937-1940 Bibliography.

This volume serves as a cumulative index to *Soils and Fertilizers*, Vols. IV to VII. The Roman and Arabic figures in the margins of the pages refer respectively to the volume and number of *Soils and Fertilizers* in which an abstract of the paper appeared.

# INDEX TO CLASSIFICATION NUMBERS

## ANALYTICAL NUMBERS

005	Apparatus	061.6	Colour
016	Bibliographies	(083.72)	Nomenclature

## 14 PHILOSOPHY

149.918.6	Anthroposophy
-----------	---------------

## 3 SOCIOLOGY

33	Economics	34	Legislation
		355.01	War

## 52 ASTRONOMY

523.32	Moon	525.5	Seasons
--------	------	-------	---------

## 53 PHYSICS

532.712	Osmotic pressure	537.533	Electron microscope
<b>535</b>	<b>Optics</b>	<b>539</b>	<b>Atomic physics</b>
535.21	Light	539.16	Radioactivity
.61	Ultraviolet light	.211	Surface
.82	Microscopy	.214	Plasticity
536.666	Heat of wetting	.215	Granulation
537.531	X-rays	.41	Cohesion. Resistance to deformation

## 54 CHEMISTRY

541/2	<b>General chemistry</b>	545.371	Indicators
541.128	Catalysis	.372	Electrodes
.134.5	Oxidation-reduction potential	<b>546</b>	<b>Inorganic chemistry</b>
.144.7	Photosynthesis	546.13	Chlorine
.145	Photocatalysis	.15	Iodine
542.943	Oxidizing power	.16	Fluorine
<b>544/5</b>	<b>Analytical chemistry</b>	.185	Metaphosphate
		.19	Arsenic
544.6	Spectrographic analysis	.22	Sulphur
		.226	Sulphuric acid
		.23	Selenium



## INDEX TO CLASSIFICATION NUMBERS

546.27	Boron	546.881	Vanadium
.284	Silica and silicates	<b>547</b>	<b>Organic chemistry</b>
.331.31	Sodium chloride	547.211	Methane
.34	Lithium	.222	Chlorinated hydrocarbons.
.47	Zinc		Carbon tetrachloride
546.49	Mercury	.292	Sodium acetate
.56	Copper	.314.2	Acetylene
.621	Aluminium	.414.8	Chloroform
.65	Rare earths	.458.84	Lignin
.681	Gallium (and indium)	.92	Steroids
.711	Manganese	.96	Proteins
.72	Iron	.973	Anthocyanins
.73	Cobalt	<b>549</b>	<b>Mineralogy</b>
.76	Chromium	549.67	Bentonite. Zeolite
.77	Molybdenum		
.841	Thorium		

## 55 GEOLOGY

550.35	Earth rays	551.574	Dew. Condensation
<b>551</b>	<b>Physical geography</b>	.577	Rainfall
551.3.051	Silting. Sedimentation	.578.4	Snow
.311.33	Loess	.58	Climate, climatology
.35	Marine ooze	<b>552</b>	<b>Petrography</b>
.41	Relief. Slope. Topography	552.323	Volcanic rocks
.432	Mountains	.323.5	Basalt
.48	Run-off	<b>553</b>	<b>Economic geology</b>
.481	Lakes. Ponds	553.72	Salt water
<b>551.5</b>	<b>Meteorology</b>	553.97	Peat
551.51	Air	.985	Asphalt
.55	Wind		
.57	Atmospheric humidity		

## 57 BIOLOGY

576.809.6	Bacteriophage	577.15.04	Plant-growth substances
		577.16	Vitamins

## 58/9 BOTANY. ZOOLOGY

581.032.3	Wilting point of plants	581.192.6	Salt tolerance of plants
581.144.2	<b>Roots</b>	581.5	Ecology and vegetation
.192	Composition of plants. Quality of crops	599.32	Beavers
			Bats

# INDEX TO CLASSIFICATION NUMBERS

## 612 PHYSIOLOGY

612.311.1 Dental physiology.  
Teeth

## 616 PATHOLOGY

616.44-006.5 Goitre

616.927 Typhus  
.936 Malaria

## 619 ANIMAL DISEASES

## 62 ENGINEERING

620.154 Instruments for  
measuring com-  
paction  
620.19 Corrosion

625.78 Roads  
627.51 Flood control

## 63 AGRICULTURE

631.3 Agricultural  
equipment  
631.312 Ploughs  
.312.364 Mole ploughs  
.5 Stubble mulching  
.54 Subsurface tillage  
implements  
631.333 Manure distribu-  
tors

631.347.2 Irrigation equip-  
ment  
.22 Subterranean ir-  
rigation  
.24 Sprinkling irriga-  
tion  
.37 Tractors

## 631.4 SOILS

631.4:551.8 Buried soils  
631.411.2 Calcareous soils  
.411.4 Organic soils  
631.412 Physico - chem-  
ical properties  
631.413 Electrochemical  
properties.  
Amphoterism  
631.413.1 Buffering  
631.414 Colloidal pro-  
perties  
631.414.04 Flocculation  
.045.2 Ultrafiltration  
.05 Dispersion  
.1 Capillarity  
.2 Colloid complex.  
Clay  
.2.025 Thixotropy

631.414.3 Base exchange.  
Absorption.  
Fixation  
.3.03 Base - exchange  
capacity. Sa-  
turation cap-  
acity  
.323 Exchangeable an-  
ions  
.324 Exchangeable  
bases  
631.415.1 Soil reaction. pH  
631.415.1:631.414.3  
Exchange acidity  
631.415.3 Alkaline soils  
.36 Reclamation of  
alkaline soils

# INDEX TO CLASSIFICATION NUMBERS

631.415.7	Plant indicators	631.417.747.45	Uronic acids
.8	pH range of crops	.791	Hydrocarbons
<b>631.416</b>	<b>Inorganic chemistry and composition of soil</b>	.792	Steroids
631.416.1	Nitrogen	<b>631.418</b>	<b>Soil solution</b>
.11	Ammonia	<b>631.42</b>	<b>Experimental methods and technique</b>
.12	Nitrite	631.42:535.82	Micro-pedology
.13	Nitrate	631.42.005	Soil sampler
.2	Phosphorus	<b>631.421</b>	<b>Field experiments. Statistical methods</b>
.3	Minor non-metals	<b>631.422</b>	<b>Qualitative soil analysis. Rapid chemical methods</b>
.315	Iodine	631.422.4	Proximate organic analysis
.316	Fluorine	<b>631.423</b>	<b>Quantitative soil analysis</b>
.319	Arsenic	631.423.3	Inorganic analysis
.322	Sulphur	.4	Organic analysis
.323	Selenium	.5	Determination of salts
.327	Boron	.6	Determination of carbonates
.328.4	Silica	.7	Determination of exchangeable bases
.4	Potassium	<b>631.425</b>	<b>Physical analysis</b>
.5	Sodium	631.425.1	Determination of density
.7.8	Calcium - magnesium ratio	.1.005	Volumenometer
.7	Calcium	.22	Determination of moisture
.8	Minor metals	.221	Determination of evaporation
.834.6	Lithium, rubidium, caesium	.23	Determination of permeability, etc.
.843.1	Barium	.24	Determination of moisture capacity
.846	Magnesium	.24.005	Tensiometer
.847	Zinc	.25	Determination of hygroscopicity
.848	Cadmium	.3	Analysis of soil air
.856	Copper	.3.005	Pyknometer
.861	Gallium	.31	Determination of porosity
.862.1	Aluminium	.4	Aggregate analysis
.865	Rare earths		
.871.1	Manganese		
.872	Iron		
.873	Cobalt		
.876	Chromium		
.877	Molybdenum		
.879	Radioactive elements		
.881.1	Tin		
.882.1	Titanium		
.888.1	Vanadium		
<b>631.417</b>	<b>Organic chemistry of soil. Organic matter</b>		
631.417.2	Humus		
	Carbon - nitrogen ratio		
.745.4	Carbohydrates		
.745.881	Cellulose		

# INDEX TO CLASSIFICATION NUMBERS

631.425.5	Mechanical analysis	631.435.1	Sand soils
.6	Measurement of soil temperature	.4	Clay soils
.7	Determination of electrical properties	.5	Stones
631.427	<b>Biological analysis</b>	631.436	<b>Soil temperature</b>
631.427.2	Microbiological analysis	631.436.5	Effect of heat on soil
.3	Determination of plant nutrients by plants. Foliar diagnosis. Mitscherlich and Neubauer methods	.6	Effect of frost on soil
631.427.3:631.547.2	Efficiency factors	631.437	<b>Electrical properties of soil</b>
.4	Determination of plant nutrients by micro-organisms. <i>Aspergillus</i> method	631.437.226.1	Dielectric constant. Capacitance
631.43	<b>Physical properties of soil</b>	.31	Conductivity
631.431	Density. Specific gravity. Shrinkage	.36	Electrodialysis
631.432	<b>Ground water</b>	631.44	<b>Soil classification. Soil types</b>
631.432.2	Soil moisture	631.445	Climatic soil types
.21	Drying of soils. Evaporation	.1	Moor soils
.3	Permeability. Leaching. Mobility of soil constituents	.11	Arctic soils
.4	Water - holding capacity of soil. pF. Moisture equivalent	.12	High-moor soils
.5	Hygroscopicity	.13	Heath soils
631.433	<b>Soil air</b>	.14	Low-moor soils
631.433.1	Porosity. Aeration	.2,3	Podzolic soils
.2	Anaerobic conditions	.2	Podzol
631.434	<b>Soil structure</b>	.3	Brown earth
631.435	<b>Mechanical composition. Texture.</b>	.4	Chernozem
		.5	Arid soils
		.51	Chestnut - coloured soils
		.52	Solonchak
		.53	Solonchak. Takyr
		.54	Solod
		.55	Desert soils
		.6	Terra rossa
		.7	Tropical and sub-tropical soils
		.72	Regur. Black cotton soil
		.73	Laterite, lateritic soils
		.9	Acclimatic soil types. Rendzina
		631.452	Fertility
		631.453	Toxicity in soils
		631.458	Soil exhaustion
		631.459	<b>Erosion</b>
		631.459:551.55	Wind erosion
		631.459:631.61	Soil conservation
		631.46	<b>Soil microbiology</b>

## INDEX TO CLASSIFICATION NUMBERS

631.461	Micro-organisms	631.462	Soil sterilization
631.461:551.6	Archebionts	631.466.1	Fungi.
631.461.1/3	Decomposition of organic matter		Mycorrhiza
.1	Ammonification	.2	Actinomycetes
.2	Nitrite - forming organisms	.3	Algae
.3	Nitrification	631.467.1	Protozoa
.4	Denitrification	631.468	Macrofauna
.5	Nitrogen fixation	<b>631.47</b>	<b>Land classifica-</b>
.51	Free nitrogen fixation.		<b>tion, utiliza-</b>
	Azotobacter		<b>tion and sur-</b>
.52	Symbiotic nitrogen fixation.		<b>vey</b>
	Rhizobia	631.471	Mapping and surveying
.61	Cellulose - decomposing bacteria	.472	Soil profile
.71	Sulphur bacteria	.472.005	Preparation of soil monoliths
.74	Other bacteria	.473	Soil survey
		<b>631.48</b>	<b>Soil formation</b>
		631.48:631.432	Gley
		631.483	Weathering

### 631.5 CULTURAL OPERATIONS

<b>631.51</b>	<b>Cultivation and tillage</b>	631.557	Yields
631.512	Ploughing	<b>631.58</b>	<b>Agricultural systems</b>
.513	Explosives, blasting	631.581	Fallows
.514	Harrowing	.582	Rotations
.515	Rolling	.582-631.459	Strip cropping
.516	Hoing	.584	Cover crops.
631.53	Propagation of plants		Mixed crops
.531	Seeds, sowing		Catch crops
631.544.3	Hot beds	.586	Dry farming
.7	Soil protection	.588.1	Electricity in agriculture
	Mulching	.589	Other cultural systems-
631.547.1	Germination		shifting cultivation, burning, etc. *
.2	Plant growth		
631.548	Water culture.		
	Hydroponics		

### 631.6 AGRICULTURAL ENGINEERING

<b>631.61</b>	<b>Land reclamation</b>	631.616	Marine reclamation
631.611	Reclamation of grassland	631.617	Reclamation of deserts
.612	Reclamation of dunes and dumps	<b>631.62</b>	<b>Drainage</b>
.613	Contour cultivation. Terracing	631.62:626.862.6	Mole drainage
.615	Reclamation of waste land	.621	Drainage water
		.622	Lysimetry
		<b>631.67</b>	<b>Irrigation</b>
		631.671	Irrigation water

# INDEX TO CLASSIFICATION NUMBERS

## 631.8 FERTILIZERS AND MANURES

<b>631.81</b>	<b>Use of fertilizers</b>	631.833.2	Potassium sul-
<b>631.811</b>	<b>Plant nutrition</b>		phate
631.811.1	Nitrogen	.833.3	Kainite
.2	Phosphorus	.834	Crude potash salts
.3	Potassium	.835	Sylvinite
.4	Calcium. Lime re-	.839	Miscellaneous
	quirement		potassium fer-
.5	Sodium		tizlers
.6	Magnesium	<b>631.84</b>	<b>Nitrogen ferti-</b>
.7	Sulphur		<b>lizlers</b>
.8	Chlorine	631.841	Ammoniacal fer-
.9	Minor elements		tizlers
.91	Water	.1	Ammonium sul-
			phate
631.812	Production and	.2	Ammonium chlo-
	storage of fer-		ride
	tizlers	.5	Cyanamide
631.813	Properties and	.6	Dicyanodiamide
	reaction of fer-	.7	Urea
	tizlers	631.842	Nitrate fertilizers
631.815	Residual value of	.3	Sodium nitrate
	fertilizers	.4	Ammonium nit-
			rate
<b>631.816</b>	<b>Application of</b>	.6	Calcium nitrate
	<b>fertilizers</b>	631.847.2	Bacterial inocu-
631.816.2	Time of applica-		lation
	tion	<b>631.85</b>	<b>Phosphorus fer-</b>
.23	Top-dressing		<b>tizlers</b>
.3	Methods of appli-	631.85:546.185	
	cation and distri-		Metaphosphates
	bution.	631.85:547.426.1	
	Placement		Glycerophos-
			phate
<b>631.82</b>	<b>Mineral amend-</b>	631.851	Rock phosphate.
	<b>ments</b> (other		Phosphorite
	than N, P, K)	.852	Bone meal
631.821:669.16	Blast-furnace slag	.853	Basic slag
.821.1	Lime	.854	Guano
.2	Gypsum	.855	Superphosphate
.822	Soil amendments	.856	Precipitated phos-
	Marl, sand,		phate
	clay, etc.	.858	Calcined phos-
.824	Magnesium fer-		phates.
	tizlers		Rhenania
.828	Minor fertilizer	.859	Iron and alu-
	constituents		minium phos-
.829	Carbon dioxide		phates
<b>631.83</b>	<b>Potassium fer-</b>	.1	Ammoniated
	<b>tizlers</b>		phosphates
631.831	Ashes	.42	Magnesium phos-
.832	Potassium chlo-		phate
	ride		

# INDEX TO CLASSIFICATION NUMBERS

<b>631.86 7</b>	<b>Organic manures</b>	<b>631.875</b>	Compost
<b>631.86</b>	Farmyard manure	.876	Oil cake. Sawdust
<b>631.86:636.3</b>		.876.2	Distillery waste
	Sheep manure	.876.9	Industrial residues
<b>631.86:636.5</b>	Poultry manure	.876.9:675.08	Tannery waste
<b>631.862</b>	Liquid manure	.877	Waste waters
.863	Night soil	.878	Peat. Coal
.867.4	Fish manure	.879.1	Town refuse
.867.6	Slaughter-house residues	.879.2	Sewage
.871	Plant residues	<b>631.893</b>	<b>Mixed and compound fertilizers</b>
.873	Seaweed		
.874	Green manure	<b>631.893.2</b>	Containing P

## 632 PLANT DISEASES AND PROTECTION

<b>632.111</b>	Frost injury	<b>632.594.91</b>	Lantana
.112	Drought injury	.599.8	Dandelion. Skeleton weed
.181	Flood injury		( <i>Chondrilla juncea</i> ). Ragwort
.183	Wind injury		( <i>Senecio jacobea</i> ). Cape weed
.184	Lodging		( <i>Cryptostemma calandulaceum</i> ).
.184	Smoke injury		Sage brush
.187	Fire injury		( <i>Artemisia</i> ).
.19	Deficiency diseases		<i>Cistus</i>
	Chlorosis	<b>632.6</b>	Destructive animals. Rodents
<b>632.2</b>	Nematode diseases	.651.6	Earthworms
<b>632.3</b>	Bacterial diseases	<b>632.7</b>	Insect pests. Entomology
<b>632.4</b>	Fungal diseases	.732	Termites
<b>632.51</b>	Weeds	.77	Tsetse fly
.536	Bracken	<b>632.8</b>	Virus diseases
.554.21	Quack grass	<b>632.951</b>	Insecticides
	( <i>Agropyron repens</i> ). Johnson grass (wild sorghum)	.22	Carbon disulphide
.554.22	Nut grass ( <i>Cyperus rotundus</i> )	.23	Arsenates
.556.7	Water hyacinth	<b>632.953</b>	Soil disinfectants and antiseptics
.566.9	<i>Stellaria media</i>	<b>632.954</b>	Weed killers
.573.6	Goose	.1	Sulphuric acid
.575.7	Leafy spurge	.6	Cyanamide
.585	Prickly pear ( <i>Opuntia</i> )	.8	Sodium chlorate
.588.1	<i>Imperata cylindrica</i>	.9	Thiocyanates
.591.24	Heather		
.594.2	Bindweed ( <i>Convolvulus arvensis</i> ). Dodder ( <i>Cuscuta</i> )		

# INDEX TO CLASSIFICATION NUMBERS

## 633 CULTIVATED CROPS

<b>633.1</b>	<b>Cereals</b>	<b>633.287</b>	Rhodes grass ( <i>Chloris gayana</i> ).
633.11	Wheat		Eleusine. Rice grass ( <i>Spartina</i> <i>Townsendii</i> ).
.12	Buckwheat		Buffalo grass
.13	Oats		Pampas grass
.14	Rye	.288	Crested wheat grass ( <i>Agro-</i> <i>pyroncrisatum</i> ).
.15	Maize	.289	<i>Nardus</i>
.16	Barley		Fodder mallow ( <i>Malva</i> )
.17	Millet. Sorghum. Kafir corn	.29	Cactus
.18	Rice	.292	<b>633.3</b> <b>Legumes</b>
<b>633.2</b>	<b>Grasses</b>		633.31 Lucerne
633.2.03	Grassland		.32 Clover
633.2.03-1.587	Water meadows		.321 Red clover
	Meadow grass.		.322 White clover.
	blue grass ( <i>Poa</i> )		Ladino clover
.23	Bent grass ( <i>Agro-</i> <i>stis</i> )	.325	Strawberry clover
.261	Bermuda grass ( <i>Cynodon</i> )	.326	Subterranean -clover
.262	Brome grass	.327	Crimson clover
.263	Rye grass ( <i>Lolium</i> )	.33	Cowpea ( <i>Vigna</i> )
.266	Paspalum. Dallis grass	.34	Soybean
.28	Russian wild rye grass ( <i>Elymus</i> <i>nuccatus</i> )	.35	Vetch
.281	Guatemala grass ( <i>Tripsacum</i> )	.363	Mucuna. Edna pea
.282	Sudan grass ( <i>Sorghum hale-</i> <i>pensis</i> )	.364	Lespedeza
.283	Kikuyu grass ( <i>Pennisetum</i> <i>clandestinum</i> ).	.366	Sweet clover ( <i>Melilotus</i> )
	Napier grass ( <i>Pennisetum</i> <i>purpureum</i> ).	.367	Lupin
	Guinea grass ( <i>Panicum maxi-</i> <i>mum</i> ).	.37	Pigeon pea. Par- tridge pea
	Carpet grass ( <i>Axonopus</i> <i>affinis</i> ). Melon <i>minidiflora</i>	.372	Broom
.285	Meadow foxtail ( <i>Alopecurus</i> <i>pratensis</i> )	.374	Lotus. Trefoil
		.375	Black locust ( <i>Robinia</i> )
		.377	Deris ( <i>Loncho-</i> <i>carpus</i> )
		.379	Kudzu ( <i>Pueraria</i> <i>thunbergiana</i> ).
			<i>Centrosema</i>
		<b>633.4</b>	<b>Root crops</b>
		633.41	Beetroot
		.42	Turnip
		.426	Swede. Rutabaga.
			Mangold
		.491	Potato
		.492	Sweet potato



# INDEX TO CLASSIFICATION NUMBERS

633.494	Jerusalem arti- choke ( <i>Helian- thus</i> )	633.85	Oil plants
633.5	<b>Fibre plants</b>	.853.55	Castor-oil plant ( <i>Ricinus</i> )
633.51	Cotton	.853.74	Sesamum. Gin- gelly
.513	Kapok	.854.56	Tung-oil tree ( <i>Aleurites</i> )
.52	Flax, linseed	.854.797	Safflower
.522	Hemp	.855	Carnauba and other oil palms
.523	Jute	.855.34	Oil palm
.524.3	Kenaf	.855.372	Babassu
.524.33	<i>Urena lobata</i>	.861.2	Saffron
.524.635.3		.861.3	Turmeric
.525.1	Nettle ( <i>Urtica</i> )	.862.4	Indigo
.526.22	Ramie	.879	Tanning plants
.526.42	Henequen	633.88	Medicinal plants
.526.6	<i>Sansevieria</i>	.881.33	<i>Hydrastis</i>
.527.5	Caroá	.883.252	Aloe ( <i>Furcata</i> )
.527.9	<i>Juncus effusus</i>	.883.259.42	
633.6	<b>Sugar and starch crops</b>		<i>Cassia tora</i>
633.61	Sugar cane	.883.259.45	
.63	Sugar beet		Cascara
.681	Arrowroot	.883.259.56	Squirting cucumber
.682	Cassava. Manioc	.883.418.3	
.685	Yam		Cardamom
.689	Coco-yam ( <i>Colocasia</i> )	.885.1	Cinchona
633.7	<b>Stimulants</b>	.887.1	Eucalypt
633.71	Tobacco	.887.791	Pyrethrum
.72	Tea	.888.41	Belladonna ( <i>Atropa</i> )
.73	Coffee	.888.421	Stramonium ( <i>Datura</i> )
.74	Cacao	633.91	<b>Rubber plants</b>
.75	Poppy	633.912	<i>Hevea</i>
.77	Mate	.913.22	Castilla
.78	Chickory	.913.31	Guayule ( <i>Parthe- nium argenta- tum</i> )
.79	Hops. Voi	.913.32	Kok-saghyz ( <i>Taraxacum</i> )
633.8	<b>Aromatic, medi- cinal and oil plants</b>	.913.36	Tau-saghyz ( <i>Scorzonera</i> )
633.812.42	Citronella.	.913.37	Rabbit brush ( <i>Chrysotham- nus</i> )
	Lemongrass	.913.43	<i>Cryptostegia</i>
.812.62	Rose geranium	633.95	<b>Sap plants</b>
.812.67	Leptospermum	633.956	Camphor
.812.687	Fennel		
.812.764	Thyme		
.815.889.2			
.821	Ginseng		
.822	Vanilla		
.841	Peppermint		
.842	Pepper		
	Chillie. Paprika.		
	Pimento		

# INDEX TO CLASSIFICATION NUMBERS

## 634 ORCHARDS. FRUIT

<b>634.1</b>	<b>Pome fruits</b>	<b>634.55</b>	Almond
<b>634.11</b>	Apple	.57	Pili nut. Oyster nut
.13	Pear	.573	Cashew nut
<b>634.2</b>	<b>Stone fruits</b>	.58	Peanut. Ground-nut
<b>634.21</b>	Apricot	<b>634.6</b>	<b>Palm fruits</b>
.22	Plum. Prune	.61	Coconut
.23	Cherry	.62	Date palm
.25	Peach	.63	Olive
<b>634.3</b>	<b>Citrus</b>	.651	Papaya
<b>634.31</b>	Orange	.653	Avocado
.323	Grape fruit	<b>634.7</b>	<b>Bush fruits</b>
.337	<i>C. aurantifolia</i>	<b>634.711</b>	Raspberry
.38	Mulberry	.715	Blackberry
<b>634.4</b>	<b>Small fruits</b>	.723	Black currant
<b>634.42</b>	Guava	.73	Bilberry, blueberry
.441	Mango	.75	Strawberry
.45	Persimmon	.76	Cranberry
.461	Tamarind ( <i>Leucaena glauca</i> )	.771	Banana
.462	Carob	.774	Pineapple
.471	Mangosteen	.776	Passion fruit
<b>634.5</b>	<b>Nuts</b>	<b>634.8</b>	<b>Viticulture.</b>
<b>634.51</b>	Walnut		<b>Grapes</b>
.521	Pecan		

## 634.9 FORESTRY

<b>634.94</b>	<b>Forest types</b>	<b>634.972.6</b>	Birch
<b>634.95</b>	<b>Silviculture</b>	.972.8	Elm
<b>634.952.2</b>	Clear cutting	.973.635.2	
.953.6	Windbreaks. Shelter belts. Shade trees		Mvule ( <i>Chlorophora excelsa</i> )
.956.4	Forest nurseries	.973.662	Alder
.957	Afforestation	.973.797	Balsa ( <i>Ochroma</i> )
<b>634.97</b>	Tree species	.973.798	Kurrajong ( <i>Braehychiton</i> )
<b>631.972/4*</b>	<b>Deciduous trees.</b>	.973.949	Teak
	<b>Hardwoods</b>	<b>634.975</b>	<b>Conifers</b>
<b>634.972.1</b>	Oak	<b>634.989.84</b>	Forest litter
.972.4	Chestnut		

## 635 VEGETABLES

<b>635.13</b>	Carrot	<b>635.34</b>	Cabbage. Kale
.15	Radish	.35	Cauliflower
.25	Onion. Leek	.41	Spinach
.282	Garlic	.42	Spinach beet
.283	Shallot	.44	Rocket ( <i>Eruca sativa</i> )
.31	Asparagus		

## INDEX TO CLASSIFICATION NUMBERS

635.52	Lettuce	635.64	Tomato
.53	Celery	.648	Okra. Gumbo
.61	Melon	.65	Beans
.62	Squash. Gourd.	.656	Peas
	Loofah	.75	Caraway. Anise
.627	Chayote ( <i>Sechium edule</i> )	.8	Mushroom
.63	Cucumber. Gherkin		

## 635.9 ORNAMENTAL HORTICULTURE

635.935.724	Narcissus	635.939.183	Primula
.935.79	Iris	.939.31	Lilac
.937.12	Hydrangea	.939.72	Gardenia
.937.138	Sweet pea	.939.98	Chrysanthemum
.937.34	Rose	.944	Tulip
.938.422	Violet	.946.69	Carnation
.938.65	Daphne	.964	Lawns. Turt
.938.86	Evening primrose	.976	Shrubs
.939.124	Azalea	.98	Greenhouse plants

## 636.7 LIVESTOCK AND PRODUCTS

636.084.22	Grazing	636.39	Goats
.086.25	Straw	636.5	Poultry
636.3	Sheep	637.1	Milk

## 66.90 MISCELLANEOUS

663.12	Yeast	711.553.9	Aerodromes
664.15	Molasses	77.03	Photography
665.7	Gas	778.35	Aerial photography
677.31	Wood		
699	Buildings	902.6	Archaeology

## GEOGRAPHICAL NUMBERS

### (4) EUROPE

(41.42)	British Empire	(46)	Spain
(411)	Scotland	(469)	Portugal
(417)	Ire	(47)	Russia
(42)	England	(471)	Finland
(429)	Wales	(474.2)	Estonia
(43)	Germany	(485)	Sweden
(436)	Austria	(492)	Holland
(437)	Czechoslovakia	(494)	Switzerland
(438)	Poland	(495)	Greece
(439)	Hungary	(496)	Turkey
(44)	France	(497.1)	Yugoslavia
(45)	Italy	(498)	Rumania
(458)	Sicily		

# INDEX TO CLASSIFICATION NUMBERS

## (5) ASIA

510	China	567	Iraq
518	Manchuria	569	Palestine
519	Chosen (Korea)	569.1	Syria-Lebanon
52	Japan	57	Siberia
531.5	Aden	573	Kamohatka
54	India	584	Central Asia
548.7	Ceylon	59	Indo China
55	Persia	591	Burma
56	Turkey	593	Holland-Siam
561.3	Cyprus	595	Malaya

## (6) AFRICA

61	North Africa	673	Angola
611	Tunisia	675	Congo
612	Libya	676	East Africa
62	Egypt	676.1	Algeria
621	Anglo-Egyptian Sudan	676.2-9	Kenya
63	Abyssinia	677	Somaland
64	Morocco	678	Langonvika
65	Algeria	678.1	Zanzibar
664	Sierra Leone	679	Mozambique
667	Gold Coast	68-91	Union of South Africa
669	Nigeria	689.1	Southern Rhodesia
671	Cameroons	689.7	Nyasaland
671.8	Spanish Guinea	696	Seychelles
672	French Equatorial Africa	698.2	Mauritius

## (7) NORTH AMERICA

71	Canada	728	Central America
711	British Columbia	728.2	British Honduras
712	Princo provinces	729	West Indies
712.3	Alberta	73	United States
712.4	Saskatchewan	74	North eastern United States
712.7	Manitoba		Connecticut
713	Ontario		Maine
714	Quebec		Massachusetts
715	New Brunswick		New Hampshire
716	Nova Scotia		New Jersey
717	Prince Edward Island		New York
718	Newfoundland		Rhode Island
72	Mexico		Vermont

# INDEX TO CLASSIFICATION NUMBERS

75	South-eastern United States (Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, West Virginia)	78	Middle-western United States (Colorado, Kansas, Montana, Nebraska, New Mexico, North Dakota, South Dakota)
76	Southern United States (Alabama, Kentucky, Louisiana, Mississippi, Oklahoma, Tennessee, Texas)	79	Western United States (California, Nevada, Oregon, Utah, Washington)
77	North-central United States (Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, Wisconsin)	798	Alaska

## (8) SOUTH AMERICA

81	Brazil	862	Panama
82	Argentina	866	Ecuador
829	Falkland Islands	87	Venezuela
83	Chile	881	British Guiana
85	Peru	89	Paraguay
86	Colombia	899	Uruguay

## (9) OCEANIA, ARCTIC AND ANTARCTIC REGIONS

914	Philippine Islands	(944	New South Wales
92	Netherlands Indies	(945	Victoria
931	New Zealand	(946	Tasmania
94	Australia	(95	New Guinea
941	Western Australia	(961	Fiji
	Australia	(969	Hawaii
942	South Australia	(984	Spitsbergen
943	Queensland	(988	Greenland
		(99	Antarctica

# BIBLIOGRAPHY OF SOIL SCIENCE, FERTILIZERS AND GENERAL AGRONOMY

1940-1944

## I. MAIN BIBLIOGRAPHY

### 631.3 AGRICULTURAL EQUIPMENT

- 631.3—McKibben, E. G.; Heady, E. O.; Hopkins, J. A.** Duty of field machines. *Agric. Engng.* 23, 1942 (357-359). VI, 2
- 631.3—Trullinger, R. W.** Recent findings in agricultural engineering. *Agric. Engng.* 23, 1942 (181-185).
- 631.3—Bomford, D. R.** Machinery in modern farming. *J. Roy. Soc. Arts* 91, 1943 (74-83).
- 631.3 : 355.01—Zink, F. J.** The integration of farm equipment into the war effort. *Agric. Engng.* 23, 1942 (317-320).
- 631.3 : 633.51—Meek, W. E.** Machinery for cotton production. *Agric. Engng.* 23, 1942 (9-11). VI, 1
- 631.3 : 633.63—Higgins, F. H.** Machines : they can solve labor problems of sugar beet farmers. *Sugar* 37, No. 12, 1942 (16-20). VI, 2

### 631.312 PLOUGHS

- 631.312—Vasey, G. H.** Rotary cultivation in Australia. *J. Aust. Inst. Agric. Sci.* 7, 1941 (11-19).
- 631.312—Jones, M. M.; Hightower, L. E.** Plow adjustment and operation. *Missouri Agric. Expt. Sta. Circ.* 232, 1942, pp. 23. E.S.R. 87 (727). VI, 2
- 631.312 ; 631.615—Bamberg.** Recent techniques for improvement of flat moors. *Deut. LandeshZtg.* 11, No. 2, 1942 (33). *Mitt. Moorwirtsch.* 7, No. 2, 1942 (5). *ForschDienst.* 14 (21). VI, 2
- 631.312.364—Childs, E. C.** What should be the length of a mole plough beam? *Farm Impl. Mach. Rev.* 68, 1943 (895-896). VI, 2
- 631.312.5—Bennett, H. H.** Conserving soil and water with stubble mulch. *Agric. Engng.* 23, 1942 (37-38, 42). V, 4
- 631.312.5—Carter, L. S.; McDole, G. R.** Stubble-mulch farming for soil defense. *U.S.D.A. Farm. Bull.* 1917, 1942 pp. 24. VI, 2
- 631.312.5—Bennett, H. H.** Are moldboard plows a curse? *Prog. Farm. (Car.-Va. Ed.)* 53 i.e. 58, No. 10, 1943 (17). U.S.D.A. Bibl. Agric. 3, No. 5 (F36). VII, 1
- 631.312.5—Hendrickson, B. H.; Carreker, J. R.; Adams, W. E.** Stubble mulch in the Southern Piedmont. *Soil Conservation* 9, 1943 (138-141). VII, 2

## BIBLIOGRAPHY OF SOIL SCIENCE

- VII, 1    **631.312.5—Nutt, G. B.; McAdams, W. N.; Peele, T. C.** Adapting farm machinery to mulch culture. *Agric. Engng.* 24, 1943 (304-305).
- VI, 4    **631.312.5—Shedd, C. K.; Norton, R. A.** Machinery problems of mulch culture. *Agric. Engng.* 24, 1943 (226, 230).
- VII, 4    **631.312.5—Cox, M. B.** Mulch culture tillage and draft requirements for tillage machinery. *Agric. Engng.* 25, 1944 (175-176).
- VI, 1    **631.312.54—Chase, L. W.** A study of subsurface tiller blades. *Agric. Engng.* 23, 1942 (43-45, 50).
- VI, 1    **631.312.54—Duley, F. L.; Russel, J. C.** Machinery requirements for farming through crop residues. *Agric. Engng.* 23, 1942 (39-42).
- VI, 1    **631.312.54—Morehead, H. A.** Equipment for subsurface tillage. *Agric. Engng.* 23, 1942 (46, 64).
- VI, 3    **631.312.54—Larsen, L. F.; Joy, E. C.** A converted subsurface tiller. *Agric. Engng.* 24, 1943 (88).
- 631.312.54—Larsen, L. F.; Joy, E. C.** A subsurface row-crop cultivator. *Agric. Engng.* 24, 1943 (123).

### 631.333 MANURE DISTRIBUTORS

- VI, 2    **631.333—Griffiths, A. E.** An experimental mechanism for the hand-placing of fertilizer in irrigated beds. *Proc. Amer. Soc. Hort. Sci.* (1942) 40, 1942 (539-544).
- VI, 1    **631.333—Farm Implement and Machinery Review.** A simple new artificial manure distributor. *Farm Impl. Mach. Rev.* 68, 1943 (735-736).
- VI, 3    **631.333—Willeman, R. H.** A device for ploughing under fertilizer. *Agric. Engng.* 24, 1943 (147-148).
- VII, 3    **631.333—Sharp, M. A.** A new liquid fertilizer distributor. *Agric. Engng.* 25, 1944 (58).
- IV, 4    **631.333 : 631.421—Wessels, P. H.** Fertilizer distributor for factorial design experiments. *J. Amer. Soc. Agron.* 33, 1941 (259-262).

### 631.347.2 IRRIGATION EQUIPMENT

- IV, 5    **631.347.2—Tamai, T.** Two types of auto-irrigated nursery. *Bull. Sch. Agric. Taihoku Univ.* No. 2, 1941 (120-135). [J.e.]
- VI, 4    **631.347.2—Schoenleber, L. H.** A study of garden irrigation. *Agric. Engng.* 24, 1943 (75-78, 80). *Biol. Abs.* 17 (1765). E.S.R. 89 (373).
- 631.347.22—Cocker, H. R.** Subsoil irrigation. *Gard. Chron.* 115, No. 2986, 1944 (118).
- VII, 1    **631.347.22 : 631.347.24—Freckmann, W.** Underground or sprinkling irrigation? *Bodenk. Pfl. Ernähr.* 29, 1942 (353-361). [G.]
- IV, 4    **631.347.24—Shaw, H. R.** A field trial of portable overhead irrigation. *Assoc. Hawaii. Sug. Tech. Rept.* 3, 1940 (31-52). *Sugar* 36, 4 (42).
- V, 2    **631.347.24—Christiansen, J. E.** The uniformity of application of water by sprinkler systems. *Agric. Engng.* 22, 1941 (89-92). E.S.R. 85 (543).
- 631.347.24—Christiansen, J. E.** Hydraulics of sprinkling systems for irrigation. *Proc. Amer. Soc. Civil Engrs.* 67, 1941 (107-125). E.S.R. 86 (836).

## FERTILIZERS AND GENERAL AGRONOMY

- 631.347.24—Weber, H.** Experience with overhead irrigation in Silesia. *Landw. Jahrb.* 91, 1941 (1-88). [G.] V, 4
- 631.347.24—Christiansen, J. E.** Irrigation by sprinkling. *Calif. Agric. Expt. Sta. Bull.* 670, 1942, pp. 124. *Biol. Abs.* 17 (1278).
- 631.347.24—Tropical Agriculture.** Overhead irrigation of bananas in Honduras. *Trop. Agric. Trin.* 19, 1942 (62). V, 4
- 631.347.24—Schoenleber, L. H.** Performance of irrigation sprinkler units. *Agric. Engng.* 25, 1944 (49-51). VII, 3
- 631.347.24—Sharp, M. A.** A new irrigation sprinkler. *Agric. Engng.* 25, 1944 (252).

### 631.37 TRACTORS

- 631.37—Mumford, C. D.; Kennedy, V. D.; Davis, G. B.** Cost of operating power equipment on Oregon farms. *Oreg. Agric. Expt. Sta. Bull.* 409, 1942, pp. 32. *E.S.K.* 88 (839). VI, 4
- 631.37—Nebraska Agricultural Experiment Station.** The Nebraska tractor tests—1920-1941. *Neb. Agric. Expt. Sta. Bull.* 338, 1942, pp. 52. VI, 4
- 631.37—Ballu, T.** Trend of power agriculture in Western European countries. *Mo. Bull. Agric. Sci. Pract.* 24, 1943 (22T-32T). VI, 3
- 631.37—Bateman, H. P.** Effect of full load on farm machine operating economics. *Agric. Engng.* 24, 1943 (111-114). VI, 3

### 631.4 SOILS

- 631.4—Albareda, J. M.** The soil: a physico-chemical and biological study of its formation and constitution. *Mem. Acad. Cienc. Madrid Ser. Cienc. Nat.* 7, 1940, pp. 485. [Sp.]
- 631.4—Arena, A.** The soil as an instrument in production. *Agronomia B. Aires* 30, 1940 (5-25). *Biol. Abs.* 16 (723). [Sp.]
- 631.4—Oosting, W. A. J.** Practical soil science. *Landbouwk. Tijdschr.* 52, 1940 (731-747). *Biol. Abs.* 15 (1200).
- 631.4 : 539.16—Fehér, D.** Investigations into the movements of plants excited by invisible beta and gamma rays from radioactive materials. II. Quantitative manifestations of rays. The biological effect of shortwave earth rays. *Pub. Bot. Inst. Roy. Hung. Univ. Sopron* 1940, pp. 19. [G.e.] IV, 3
- 631.4 : 544.134.5—Dirks, B.** The redox potential of the soil, an important new growth factor, and two other growth factors of the soil. *Bodenk. Pflernähr.* 21, 22, 1940 (684-697). *ForschDienst.* 11 (75). [G.] IV, 6
- 631.4 : 541.134.5—Geller, I. A.** Treatment of platinum electrodes used for determining the oxidation-reduction potential of soil. *Kolloid. Zh.* 6, 1940 (79-84). *B.C.A.B.* III, 1941 (61). IV, 4
- 631.4 : 541.134.5—Rotinjan, A. L.** Treatment of platinum electrodes used for determining the redox potential of soil. *Kolloid. Zh.* 7, 1941 (35-38). *B.C.A.B.* III, 1942 (3).
- 631.4 : 549—Sedletsky, I. D.** Metastable forms of minerals in soil. *Priroda* 26, No. 12, 1938 (70-73). *C.A.* 34 (6902). IV, 1
- 631.4 : 549—Correns, C. W.** Mineralogical investigations of soils. *Bodenk. Pflernähr.* 21/22, 1940 (656-666). *C.A.* 37 (6387). [G.] VII, 2



## BIBLIOGRAPHY OF SOIL SCIENCE

- V, 1    **631.4 : 549—Hart, R.** Soil studies in relation to geology in an area in north-east Scotland. Part I. The mineralogy of the soil parent materials. *J. Agric. Sci.* 31, 1941 (438-447).
- V, 6    **631.4 : 549—Alexander, L. T.; Hendricks, S. B.; Faust, G. T.** Occurrence of gibbsite in some soil-forming materials. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (52-57).
- VII, 3    **631.4 : 549—Sedletsy, I. D.** The agricultural significance of the mineralogical study of soils. *Truda* No. 1, 1943 (45-48). [R.]
- VI, 2    **631.4 : 549 : 551.311.33 Yusupova, S. M.** A Roentgen mineralogical study of the loess soils in the vicinity of Tashkent. *C.R. Acad. Sci. (U.S.S.R.)* 32, 1941 (575-577). [E.]
- VII, 3    **631.4 : 549 : 551.311.33 Rozanov, A. N.; Shukevich, M. M.** The mineralogical composition of loess-like rocks of Central Asia. *Pedology* No. 9-10, 1943 (37-43). [R.]
- V, 1    **631.4 : 549 : 631.58 Lutz, H. J.** The vertical distribution of heavy minerals in virgin and cultivated soils. *Science* 94, 1941 (344-345).
- IV, 1    **631.4 : 55—Lawson, M.** Relation of certain terrace soil material to geological structure in the Arkansas Valley Province of Arkansas. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (359).
- V, 3    **631.4 : 55—Polynov, B. B.** Points of contact and divergence between soil science and other geological sciences. *Pedology* No. 6, 1941 (3-11). [R.]
- 631.4 : 551.432 Pershina, M. N.** Vertical zonality of soils of the central part of the Kyslovodsk region. *Pedology* No. 8, 1939 (63-76). [R.]
- IV, 2    **631.4 : 551.432 : 631.432.3 Sokolov, S. I.** A study of water permeability in mountain soils. *Pedology* No. 6, 1940 (77-87). [R.]
- 631.4 : 551.8 Simonson, R. W.** Studies of burned soils formed from till in Iowa. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (373-381).
- VI, 4    **631.4 : 577.16 Carpenter, C. C.** Riboflavin-vitamin B<sub>2</sub> in soil. *Science* 98, 1943 (109-110).
- V, 2    **631.4 : 581.192 Stoddart, L. A.** Chemical composition of *Symphoricarpos rotundifolius* as influenced by soil, site, and date of collection. *J. Agric. Res.* 63, 1941 (727-739).
- IV, 2    **631.4 : 616.927 Beard, P. J.** Longevity of *Escherichia typhosus* in various soils. *Amer. J. Pub. Health* 30, 1940 (1077-1082). C.A. 34 (7510).
- IV, 5    **631.4 : 620.19 Kuhr, C. A. von Wolzogen.** The corrosion of lead and copper water pipes in the soil. *Water Den Haag* 23, 1939 (215); *J. Amer. Water Works Assn.* 32, 1940 (355-358). C.A. 35 (3946).
- IV, 1    **631.4 : 620.19 Solov'ev, A. V.; Yanovaky, P. G.** Corrosion-preventing coating of the Gur'ev-Koshagyl water pipes. *Vodosnab. Sanit. Tekh.* No. 3, 1939 (54-61). C.A. 34 (5980).
- IV, 1    **631.4 : 620.19 Ganser, P.** Pipeline corrosion caused by anaerobic bacteria. *Gas J.* 231, 1940 (371-373). B.C.A. 59 (718).
- IV, 5    **631.4 : 620.19 Solov'ev, A. V.** The formation of acid and corrosion of metals in certain soils. *Zh. Khim. Prom.* 17, No. 9, 1940 (42-45). C.A. 35 (1747).
- V, 6    **631.4 : 620.19 Logan, K. H.** Soil-corrosion studies, 1939. Coatings for protection of metals underground. *J. Res. Natl. Bur. Stand.* 28, 1942 (57-71). B.C.A.B.I. 1942 (351).

## FERTILIZERS AND GENERAL AGRONOMY

- 631.4 : 620.19--National Bureau of Standards.** Corrosion in soils. *U.S. Dept. Commerce Natl. Bur. Stand. Letter Circ.* 689, 1942, pp. 54. (Mimeo.) VI, 3
- 631.4 : 620.19 Reinfeld, E. A.** The role of biological factors in metal corrosion (pipe-line corrosion). *Mikrobiologia* 11, 1942 (195-206). C.A. 38 (3238). [R.e.] VII, 4
- 631.4 : 620.19 -Vine, H.** Dependence of the rate of corrosion of buried iron on the oxygen supply of the soil. *Soil Sci.* 54, 1942 (159-176). VI, 1
- 631.4 : 620.19 : 631.425.7 Darnielle, R. B.** Measurement of electrode potentials and polarization in soil-corrosion cells. *J. Res. Natl. Bur. Stand.* 25, 1940 (421-433). B.C.A.B. III, 1941 (61). IV, 4
- 631.4 : 620.19 : 631.461.71 Bunker, H. J.** Activities of the sulphate-reducing bacteria, with particular reference to underground metallic corrosion. *Proc. Soc. Agric. Bact.* (1941) 1941 (8-9). Biol. Abs. 16 (2061) VI, 1
- 631.4 : 620.19 : 631.461.71 Bunker, H. J.** The corrosion of mains in clay soils. *Surveyor* 102, 1943 (443-444, 459-460). Biol. Abs. 18 (772). VII, 3
- 631.4 : 711.553.9 Housel, W. S.** Investigation of soil conditions in airport construction. *Univ. Mich. Dept. Civil Engng.* 1941, pp. 26. VI, 1
- 631.4.061.6 Mickelson, E. B.** Soil color standards and analyses for Ohio. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (114-119).
- 631.4.061.6 Rice, T. D.; Nickerson, D.; O'Neal, A. M., et al.** Preliminary color standards and color names for soils. *U.S.D.A. Misc. Pub.* 425, 1941, pp. 12.
- 631.4.061.6 -Nickerson, D.** Color standards and color names for soils. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (392-393).
- 631.4.061.6 Raymond, P. E.** The pigments in black and red sediments. *Amer. J. Sci.* 240, 1942 (658-669). C.A. 36 (6450). VI, 1
- 631.4.061.6 Pllice, M. J.** Factors affecting soil color (progress report). *Proc. Okla. Acad. Sci.* 23, 1943 (49-51). Biol. Abs. 17 (2411). VII, 2
- 631.4.061.6 -Taylor, J. K.** A proposed classification of soil colour. *Aust. J. Coun. Sci. Indust. Res.* 16, 1943 (74-84, 141). VI, 4
- 631.4.061.6 -Tarnés, A. C.** The determination of the characteristic colour of soils. *Bot. Inst. Invest. Agron. Madrid* No. 10, 1944 (297-306). [Sp. f. e. g.]
- 631.4.061.6 : 631.436 -Indian Farming.** Colour and plant growth. *Indian Farm.* 2, 1941 (47). IV, 3
- 631.4.061.6 : 631.452 Beauchamp, C. E.** The influence of color on soil productiveness. *Proc. 13th Ann. Conf. Cuban Sug. Tech. Assoc.* 1939 (253-272). F.A.S. 35, 12 (42). I.S.J. 43 (6). IV, 2
- 631.4.061.6 : 77.03 -Brown, L. A.; Langley, M. N.** Color photography in soil studies. *Colo. Agric. Expt. Sta. Tech. Bull.* 26, 1939, pp. 7. IV, 6
- 631.411 CALCAREOUS AND ORGANIC SOILS**
- 631.411.2 : 537.531-Hoyos, A. de Castro.** The critical concentration of calcium carbonate in some Spanish clays. *An. Inst. Edafol.* 2, 1943 (108-117). [Sp.e.] VII, 2

# BIBLIOGRAPHY OF SOIL SCIENCE

- IV, 6      **631.411.2 : 549--Jeffries, C. D.; White, J. W.** Some mineralogical characteristics of limestone soils of different localities. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (304-308).
- VII, 3      **631.411.2 : 631.81--McGeorge, W. T.** Acidulated fertilizers for Arizona soils. *Ariz. Agric. Expt. Sta. Tech. Bull.* 101, 1943 (221-256). C.A. 38 (1062). E.S.R. 90 (164).
- VI, 1      **631.411.2 : 631.85--Hinkle, D. A.** Efficiency of various phosphate fertilizers on calcareous soil for alfalfa and sweet clover. *J. Amer. Soc. Agron.* 34, 1942 (913-918).
- VI, 3      **631.411.4 : 546.56--Forsee, W. T., Jr.** Recent plant responses to some of the microelements on Everglades peat. *Proc. Soil Sci. Soc. Florida* 2, 1940 (53-58). C.A. 36 (2359).
- VII, 2      **631.411.4 : 546.56--Zelenov, V. G.** The action of fertilizers containing copper on peat soils. *Trudy TSKhA* 5, No. 1, 1940 (251-259). C.A. 38 (811).
- VII, 3      **631.411.4 : 631.416.13--Neller, J. R.** Influence of cropping, rainfall, and water table on nitrates in Everglades peat. *Soil Sci.* 57, 1944 (275-280).
- VII, 3      **631.411.4 : 631.416.872--Verigina, K. V.; Zavalishin, A. A.; Maksimiuk, G. P.** Preliminary work on the study of processes of bog formation in soils. *Probl. Sovet. Pochvoved.* 11, 1940 (189-223). [R.]
- V, 3      **631.411.4 : 631.43 : 581.5--Gädeke, F.** Investigation of some physical properties of low-moor soil in relation to the plant cover of meadows and pastures. *Landw. Jahrb.* 91, 1941 (266-354). [G.]
- IV, 5      **631.411.4 : 631.431--Udden.** Settlement of moors in the deeper layers. *Kulturtech.* 42, 1939 (150-155). *Forsch.Dienst.* 11 (9). [G.]
- V, 5      **631.411.4 : 631.432.4--Jamison, V. C.** Structure of some organic soils and soil mixtures as shown by means of pF moisture studies. *J. Amer. Soc. Agron.* 34, 1942 (393-404).
- V, 5      **631.411.4 : 631.433 : 581.5--Gädeke, F.** Relationship between air capacity of low-moor soils and vegetation of moor grassland. *Pflanzenbau* 17, 1941 (249-262). *Biol. Abs.* 16 (1226). [G.]
- 631.411.4 : 631.436--Vesikivi, A.** Results of observations of air temperatures above clay soils and cultivated moor soils and also above drained and undrained *Sphagnum fuscum* bogs. *Finska MosskFören. Vetenskap. Skrift.* No. 18, 1941, pp. 53. [Fi.g.]
- IV, 4      **631.411.4 : 631.44--Dachnowski-Stokes, A. P.** Structural characteristics of peat and muck. *Soil Sci.* 50, 1940 (389-399). C.A. 35 (2256). *Biol. Abs.* 15 (807).
- VII, 2      **631.411.4 : 631.44--Zavalishin, A. A.; Lavrenko, E. M.** The classification of marshy soils in connexion with defence needs. *Priroda* No. 5-6, 1942 (89-93). [R.]
- IV, 6      **631.411.4 : 631.58--Lindenbein, W.; Richter, W.** The effect of high-moor cultivation on the technical qualities of sphagnum peat. Preliminary report. *Angew. Bot.* 22, 1940 (308-316). C.A. 35 (4893).
- 631.411.4 : 631.58--Vesikivi, A.** Experimental results from the experiment stations of the Finnish Peat-Culture Society for the year 1939. I. Läteensuo Experiment Station. *Finska MosskFören. Årsb.* (1940) 44, 1941 (56-80). *Biol. Abs.* 16 (471).

## FERTILIZERS AND GENERAL AGRONOMY

- 631.411.4 : 631.58**—Djurle, O. Planning of crop cultivation on peat soils. *Svenska Vall- o. MosskFören. Kvaritalskr.* 4, 1942 (295-306). Herb. Abs. 13 (122). [Sw.]
- 631.411.4 : 631.58**—Baden, W. Moor cultivation as an agricultural problem. *ForschDienst.* 15, 1943 (204-215). [G.]
- 631.411.4 : 631.58**—Kidner, A. W. The wind in the Fens. *J. Min. Agric.* 50, 1943 (260-261).
- 631.411.4 : 631.62**—Clayton, B. S.; Neller, J. R.; Allison, R. V. Water control in the peat and muck soils of the Florida Everglades. *Fla. Agric. Expt. Sta. Bull.* 378, 1942, pp. 74. E.S.R. 89 (178).
- 631.411.4 : 631.81**—Salohelmo, L. Experimental results from the experiment stations of the Finnish Peat-Culture Society for 1939. II. Karelian Experiment Station. *Finska MosskFören. Årsb.* (1940) 44, 1941 (80-100). Biol. Abs. 16 (722). V, 4
- 631.411.4 : 631.811.2**—Nieschlag, F. The influence of the lime condition of marshy soils on their supply of readily soluble phosphoric acid. *Phosphorsäure* 8, 1939 (166-171). C.A. 35 (6044). VI, 3
- 631.411.4 : 631.811.4**—Brüne, F. The lime needs of marsh soils. *Mitt. Landw.* 57, 1942 (178-179). C.A. 37 (4177). VII, 2
- 631.411.4 : 631.811.9**—Harmer, P. M. The nutrition of muck crops. *Better Crops with Plant Food* 25, No. 4, 1941 (11-16, 44-46). IV, 5
- 631.411.4 : 631.85**—Bakhulin, M. D. The effectiveness of phosphorus fertilizers on peat soil. *Trudy TSKhA* 5, No. 1, 1940 (216-250). C.A. 38 (611). VII, 2

## 631.412 4 PHYSICAL CHEMISTRY OF SOIL

- 631.412**—Pallmann, H. Physical chemistry of the soil. *Schweiz. Arch. Angew. Wiss. Tech.* 5, 1939 (61-74). C.A. 36 (6283).
- 631.412 : 541.128**—Conrad, J. P. Catalytic activity causing the hydrolysis of urea in soils as influenced by several agronomic factors. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (238-241). IV, 6
- 631.412 : 541.128**—Conrad, J. P. Enzymatic vs. microbial concepts of urea hydrolysis in soils. *J. Amer. Soc. Agron.* 34, 1942 (1102-1113). VI, 2
- 631.412 : 541.128**—Conrad, J. P. The occurrence and origin of ureaslike activities in soils. *Soil Sci.* 54, 1942 (367-380). VI, 2
- 631.412 : 541.128**—Rogers, H. T. Dephosphorylation of organic phosphorus compounds by soil catalysts. *Soil Sci.* 54, 1942 (439-446). VI, 2
- 631.412 : 576.809.6**—Korneeva, N. P. The effect of the physico-chemical properties of the soil on bacteriophage. *Mikrobiol. Zh.* 7, No. 3, 1940 (105-123). C.A. 35 (3379).
- 631.412 : 625.7/8**—Bezruk, V. M. The thermal treatment of earths. *Pedology* No. 8, 1940 (125-134). C.A. 35 (6721). VI, 4
- 631.412 : 625.7/8**—Maksimovich, N. A. The change in the physicochemical properties of earth in plastic condition. *Pedology* No. 8, 1940 (99-110). C.A. 35 (6721). [R.g.] VI, 4
- 631.412 : 625.7/8**—Askalonov, V. V.; Velsfeld, G. B. Silica sols and gels and their application in fixing grounds. *Pedology* No. 4-5, 1943 (41-53). [R.e.] VII, 2

# BIBLIOGRAPHY OF SOIL SCIENCE

- VI, 1    **631.413** --Davis, L. E. Significance of Donnan equilibria for soil colloidal systems. *Soil Sci.* 54, 1942 (199-219).
- 631.413** --Kelley, W. P. Mattson's papers on "The laws of soil colloidal behavior" review and comments. *Soil Sci.* 56, 1943 (443-456).
- 631.413** --Mukherjee, J. N.; Sen Gupta, N. C.; Indra, M. K. Effect of concentration and pH on the viscous and electrochemical properties of hydrogen bentonites. *J. Phys. Chem.* 47, 1943 (553-577).
- VI, 3    **631.413** : **581.144.2** Lundegårdh, H. Studies on certain electrochemical properties of the root systems of plants. *Kgl. Lantbruksl. Förel.* 81, 1942 (115-126). [Sw.g.]
- VI, 2    **631.413** : **631.417.2** Mattson, S.; Koutler-Andersson, E. The acid-base condition in vegetation, litter and humus. I. Acids, acidoids and bases in relation to decomposition. II. Acids, acidoids and bases in relation to soil types. III. Acidoid formation in relation to base status. IV. The strength of the acidoids and the relation to nitrogen. *Lantbruksl. Ann.* 9, 1941 (1-26, 27-37, 38-56, 57-73). [E.]
- IV, 2    **631.413.1** : **631.416** Zanevich, V. E. Buffer capacity of soils in relation to the processes of fixation and mobility of nutrients. *Sci. Stud. Soc. Res. Inst. Moscow* (1937) 1939 (226-227). *Pedology* No. 5, 1940 115. [R.]
- 631.413.1** : **631.81** Kobayashi, M. Effects exerted by the continuous use of manures upon the buffer capacity and catalytic action of soil. *J. Sci. Soil Japan* 14, 1940 (789-796). [J.]
- IV, 5    **631.414** Sharov, V. S. Contradictions in contemporary colloid chemistry of soils and their source. *Pedology* No. 6, 1939 (121-135). C.A. 35 (3377).
- VII, 2    **631.414** Antipov-Karataev, I. N. The science of the soil as a polydispersed system and its development in the U.S.S.R. during the 25 years 1917-1942. *Pedology* No. 6, 1943 (3-26). C.A. 38 (607). [R.e.]
- 631.414** --Antipov-Karataev, I. N. Changes in the dispersity of soil masses and problems of their practical utilization. *Pedology* No. 7, 1943 (3-17). [R.e.]
- 631.414** --Atkinson, H. J. Soil colloids. *Sci. Agric.* 23, 1943 (273-286).
- VI, 3    **631.414** : **553.72** Titani, T.; Morita, N. Colloid-chemical research on the soils near the Osaka Harbour. IV. Discussion of the cause of the sinking of the ground near the harbour. *J. Chem. Soc. Japan* 62, 1941 (609-611). C.A. 36 (205).
- 631.414** : **631.61** --Ehrenberg, P. After 34 years-- soil improvement--a continual big problem for applied colloid chemistry. *Kolloid-Ztschr.* 100, 1942 (83-97). C.A. 37 (6072). [G.]
- 631.414** : **631.81** --Shchukina, A. I. Changes in the colloidal properties of the soil in connexion with chemical amelioration under irrigation conditions. *Pedology* No. 7-8, 1941 (40-49). [R.g.]
- V, 6    **631.414** : **631.81** --Alten, F.; Loofmann, H. Investigations on the effect of chloride-containing fertilizers upon the solubility of phosphoric acid in arable soils, and on the dependence of the "colloid shrinkage" of soil upon the manuring. *Bodenk. Pflernähr.* 27, 1942 (99-115). [G.]

# FERTILIZERS AND GENERAL AGRONOMY

- 631.414.04/5 - Rabinerson, A. I. Structure formation in soil colloids and methods for its investigation. *Trudy IOVTA* Pt. 2, 1938 (427-438). C.A. 36 (7204). VI, 2
- 631.414.04 - Gallagher, P. H.; Walsh, T. Soil drainage as influenced by deflocculation. *Proc. Roy. Irish Acad.* 49B, 1943 (61-89). B.C.A.B. III, 1943 (229). VII, 1
- 631.414.04 : 631.415.1 - Preisch, M. Sedimentation potential of soil suspensions. *Mezőg. Kutat.* 15, 1942 (90-96). C.A. 38 (3067). VII, 4
- 631.414.05 - Arkhangel'sky, N. V. The dispersion coefficient and factors determining it. *Trudy Gork. S.-Kh. Inst.* 3, 1939 (53-60). *Pedology* No. 6, 1940 (104). IV, 2
- 631.414.05 - Nikolsky, B. P. The theory of the Wiegner and Pallmann suspension effect. *Pedology* No. 9, 1939 (138-143). [R.]
- 631.414.05 - Marshall, C. E. Studies in the degree of dispersion of the clays. IV The shapes of clay particles. *J. Phys. Chem.* 45, 1941 (81-93). IV, 3
- 631.414.05 : 631.432.2 - Kolodny, L.; Joffe, J. S. The relation between moisture content and the microaggregation or the degree of dispersion in soil. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (7-12). IV, 1
- 631.414.05 : 631.432.2 - Jewitt, T. N. Dispersion studies on Gezira soil. *J. Agric. Sci.* 31, 1941 (466-478). V, 1
- 631.414.05 : 633.2.03-1.58 - Browning, G. M.; Fogle, H. G. The relation of the dispersion ratio to the type and amount of pasture vegetation. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (42-44). IV, 6
- 631.414.1 - Belichenko, D. M. Relation between the capillary rise and the specific surface of foundation soils. *Pedology* No. 5, 1940 (59-70). [R.g.]
- 631.414.1 - Belkin, N. I. The ascent of salt solutions in the soil. *Shorn. Rab. Dnepropetrovsk. S.-Kh. Inst.* No. 2, 1940 (3-10). C.A. 37 (2861). VII, 2
- 631.414.1 - Ramdas, L. A.; Mallik, A. K.; Pandit, U. P. Effect of concentration on capillary movement of some salt solutions through black cotton soil. *Curr. Sci.* 11, 1942 (288-289). B.C.A.B. III, 1943 (29). VI, 3
- 631.414.1 : 631.432 - Ram, G.; Vaidhyanathan, V. I. On capillary forces in natural soils. *Proc. Indian Acad. Sci.* 13A, 1941 (77-84). IV, 4
- 631.414.1 : 631.432.3 - Letunoy, P. A.; Muzychuk, I. F.; Lapshina, A. N. The movement of salts with capillaryly suspended water. *Sborn. Pam. W. R. Williams*, 1942 (247-265). [R.] VII, 3
- 631.414.1 : 631.435 - Garman, P. C. Capillary rise and capillary movement of moisture in fine sands. *Soil Sci.* 52, 1941 (1-14). IV, 6
- 631.414.1 : 631.435 - Mamanina, L. The effect of insulating interlayers on the height of capillary rise of water in heavy loams. *Pedology* No. 2-3, 1944 (101-105). [R.e.] VII, 4
- 631.414.1 : 631.81 - Curini-Galletti, A. Method for determining the surface tension of soil. Changes of capillary rise in arable soil by means of chemical fertilizers. *Ann. Sta. Sper. Agrar. Modena* 7, 1939-40 (211-217). C.A. 38 (2777). VII, 4
- 631.414.2 - Hauser, E. A.; Le Beau, D. S. Studies in colloidal clays. II. *J. Phys. Chem.* 45, 1941 (54-65).
- 631.414.2 - Heinze, E. A contribution to chemical investigation of soil and particularly of its adsorption complex. *Bodenk. Pflernähr.* 28, 1942 (331-362). [G.] V, 4

# BIBLIOGRAPHY OF SOIL SCIENCE

- V, 4 631.414.2—Nikiforoff, C. C.; Alexander, L. T. The hardpan and the claypan in a San Joaquin soil. *Soil Sci.* 53, 1942 (157-172).
- VI, 4 631.414.2—Nikiforoff, C. C.; Drosdoff, M. Genesis of a claypan soil: II. *Soil Sci.* 56, 1943 (43-62).
- IV, 4 631.414.2 : 537.531—Maegdefrau, E.; Hofmann, U. The X-ray determination of minerals in clays. *Ber. Deut. Keram. Ges.* 21, 1940 (383-412). C.A. 35 (1287).
- IV, 2 631.414.2 : 537.531—Shearer, J.; Cole, W. F. Analysis of soil colloids by X-ray diffraction methods. *J. Roy. Soc. W. Aust.* 26, 1939-40 (121-131).
- 631.414.2 : 537.531—Shearer, J.; Cole, W. F. X-ray analysis of some Tasmanian soil colloids. *J. Roy. Soc. W. Aust.* 26, 1939-40 (133-137).
- 631.414.2 : 537.531—Jacob, A. Methods for determining the mineralogical composition of the clay fraction of soils. *Ernahr. Pfl.* 37, 1941 (28-34). [G]
- IV, 4 631.414.2 : 537.531—Nagelschmidt, G. The identification of clay minerals by means of aggregate X-ray diffraction diagrams. *J. Sci. Instrum.* 18, 1941 (100-101).
- 631.414.2 : 537.531—Sedletsy, I. D. Advances in X-ray mineralogy of colloids of sedimentary rocks in the U.S.S.R. in the last 25 years. *Prirada* No. 7-8, 1942 (48-50). [R]
- VII, 1 631.414.2 : 537.531—Cole, W. F. X-ray analysis of some soil colloids from Gingin, Western Australia. *Soil Sci.* 56, 1943 (153-171).
- VII, 1 631.414.2 : 537.531—Hellman, N. N.; Aldrich, D. G.; Jackson, M. L. Further note on X-ray diffraction procedure for the positive differentiation of montmorillonite from hydrous mica. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (194-200).
- VII, 3 631.414.2 : 537.531—Aldrich, D. G.; Hellman, N. N.; Jackson, M. L. Hydration control of montmorillonite as required for its identification and estimation by X-ray diffraction methods. *Soil Sci.* 57, 1944 (215-231).
- IV, 3 631.414.2 : 537.533—Ardenne, M. von; Endell, K.; Hofmann, U. Observations on the finest fractions of bentonites and clay soils with the universal electron microscope. *Ber. Deut. Keram. Ges.* 21, 1940 (209-227). C.A. 35 (411).
- V, 2 631.414.2 : 537.533—Hofmann, U.; Jacob, A.; Loofmann, H. Examination of the clay fraction of soils by means of the electron microscope. *Bodenk. Pflernahr.* 25, 1941 (257-271). [G]
- V, 2 631.414.2 : 537.533—Humbert, R. P.; Shaw, B. Studies of clay particles with the electron microscope: I. Shapes of clay particles. *Soil Sci.* 52, 1941 (481-487).
- V, 6 631.414.2 : 537.533—Marshall, C. E.; Humbert, R. P.; Shaw, B. T., et al. Studies of clay particles with the electron microscope: II. The fractionation of beudanticite, nontronite, magnesium bentonite, and attapulgite. *Soil Sci.* 54, 1942 (149-158).
- 631.414.2 : 537.533—Marton, L. Applications of the electron microscope in colloid chemistry. *J. Phys. Chem.* 46, 1942 (1023-1032).
- VI, 2 631.414.2 : 537.533—Shaw, B. T. The nature of colloidal clay as revealed by the electron microscope. *J. Phys. Chem.* 46, 1942 (1032-1043).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.414.2 : 537.533**—Kelley, O. J.; Shaw, B. T. Studies of clay particles with the electron microscope. III. Hydrodynamic considerations in relation to shape of particles. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (58-68). *Biol. Abs.* 17 (2180). C.A. 37 (5535). VII, 1
- 631.414.2 : 539.211**—Nelson, R. A.; Hendricks, S. B. Specific surface of some clay minerals, soils, and soil colloids. *Soil Sci.* 56, 1943 (285-296). VII, 1
- 631.414.2 : 539.214**—Durnovtsev, D. I. The characteristics of some plastic soils of central Asia. *Soil Fert. Problems Cotton Res. Inst. Tashkent* 1939 (43-59). C.A. 36 (6284). VI, 2
- 631.414.2 : 539.214**—Macey, H. H. Clay-water relationships. *Proc. Phys. Soc.* 52, 1940 (625-656). C.A. 35 (18). IV, 3
- 631.414.2 : 539.214**—Pokrovsky, G. I. The question of the plasticity mechanism of clay. *Pedology* No. 8, 1940 (38-42). [R.g.] IV, 3
- 631.414.2 : 546.284** Winters, E. Silica hardpan development in the red and yellow podzolic soil region. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (437-440). *Biol. Abs.* 17 (1962). VII, 1
- 631.414.2 : 546.711** Marel, H. W. van der. Research on the occurrence of ferromanganiferous concretions and nuggets in the liparite soils of the east coast of Sumatra. *Bergcultures* 15, 1941 (500-502). [Du.] IV, 6
- 631.414.2 : 546.72** Toth, S. J. Flocculation and electrokinetic behavior of two deferrated soil colloids. *Soil Sci.* 53, 1942 (265-272). V, 4
- 631.414.2 : 549** Sedletsy, I. D. Mineralogical transformations of aluminosilicate gels with time. *Zap. Miner. Obsh.* 68, 1939 (203-206). C.A. 34 (7224). IV, 2
- 631.414.2 : 549** Siderl, D. I. Aggregate structure of clays. *Bull. Acad. Sci. (U.S.S.R.) (Cl. Sci. Math.) Sér. Géol.* 1939 (172-180). C.A. 34 (7219). IV, 2
- 631.414.2 : 549** Eitel, W.; Radczewski, O. E. Characterization of the clay mineral montmorillonite by means of the ultra-microscope. *Naturwissenschaften* 28, 1940 (397-399). C.A. 35 (3195). IV, 5
- 631.414.2 : 549** Hosking, J. S. The constitution and classification of the clay minerals. *Aust. Chem. Ind. J. Proc.* 7, 1940 (234-250). IV, 1
- 631.414.2 : 549**—Hosking, J. S. The soil clay mineralogy of some Australian soils developed on granitic and basaltic parent material. *Aust. J. Coun. Sci. Indust. Res.* 13, 1940 (206-216). IV, 1
- 631.414.2 : 549**—Morozov, S. S. The chemical and physical properties of the clay fractions of podzolic-marsh soil. *Pedology* No. 8, 1940 (43-66). C.A. 35 (6721). [R.g.] VI, 3
- 631.414.2 : 549**—Sedletsy, I. D. The colloidal-mineralogical composition of the absorbing complex of soils. *Priroda* 29, No. 7, 1940 (17). C.A. 37 (2858). VII, 3
- 631.414.2 : 549**—Cole, W. F. Results of a microscopic study of some soil colloids. *J. Roy. Soc. W. Aust.* 27, 1941 (1-7). V, 3
- 631.414.2 : 549**—Hendricks, S. B.; Alexander, L. T. Semi-quantitative estimation of montmorillonite in clays. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (95-99). IV, 6



# BIBLIOGRAPHY OF SOIL SCIENCE

- IV, 6    **631.414.2: 549**—Russell, M. B.; Haddock, J. L. The identification of the clay minerals in five Iowa soils by the thermal method. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (90-94).
- V, 2    **631.414.2: 549**—Sedletsy, I. D. Paragenesis of elements and minerals in colloids of soils and clays. *C.R. Acad. Sci. (U.S.S.R.)* 30, 1941 (160-162). [E.]
- VI, 2    **631.414.2: 549**—Antipov-Karataev, I. N.; Ponomarev, G. M.; Sedletsy, I. D. The genesis of colloid-disperse minerals in soils. *Pedology* No. 3-4, 1942 (54-60). [R.]
- VI, 4    **631.414.2: 549**—Caldwell, O. G.; Marshall, C. E. A study of some chemical and physical properties of the clay minerals montmorillonite, attapulgite and saponite. *Missouri Agric. Expt. Sta. Res. Bull.* 354, 1942, pp. 51.  
      **631.414.2: 549**—Grim, R. E. Modern concepts of clay minerals. *J. Geol.* 50, 1942 (225-275). C.A. 36 (5443).
- VI, 4    **631.414.2: 549**—Grim, R. E.; Rowland, R. A. Differential thermal analysis of clay minerals and other hydrous minerals. I, II. *Amer. Miner.* 27, 1942, 746-761, 801-818. C.A. 37 (172).  
      **631.414.2: 549**—Hendricks, S. B. Lattice structure of clay minerals and some properties of clays. *J. Geol.* 50, 1942 (276-290). C.A. 37 (585).
- V, 6    **631.414.2: 549**—Jackson, M. L.; Hellman, N. N. X-ray diffraction procedure for positive differentiation of montmorillonite from hydrous mica. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (133-145).  
      **631.414.2: 549**—Kelley, W. P. Modern clay researches in relation to agriculture. *J. Geol.* 50, 1942 (307-319). C.A. 37 (709).
- VI, 2    **631.414.2: 549**—Marshall, C. E.; Krinbill, C. A. The clays as colloidal electrolytes. *J. Phys. Chem.* 46, 1942 (1077-1090).
- V, 6    **631.414.2: 549**—Ross, C. S.; Hendricks, S. B. Clay minerals of the montmorillonite group: their mineral and chemical relationships and the factors controlling base exchange. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (58-62).
- V, 5    **631.414.2: 549**—Schafer, G. M.; Russell, M. B. The thermal method as a quantitative measure of clay mineral content. *Soil Sci.* 53, 1942 (353-364).  
      **631.414.2: 549**—Sedletsy, I. D. Subdivision of colloid-dispersed minerals of the montmorillonite group. *C.R. Acad. Sci. (U.S.S.R.)* 34, 1942 (130-133). C.A. 37 (1350).
- VII, 2    **631.414.2: 549**—Sedletsy, I. D. Colloid-dispersion mineralogy, its problems and methods. *C.R. Acad. Sci. (U.S.S.R.)* 34, 1942 (165-170). C.A. 37 (1350).
- VI, 2    **631.414.2: 549**—Sedletsy, I. D. Colloid-disperse minerals of the main soil types. *Pedology* No. 3-4, 1942 (61-72). [R.]
- V, 5    **631.414.2: 549**—Shaw, B. T.; Humbert, R. P. Electron micrographs of clay minerals. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (146-149).
- V, 6    **631.414.2: 549**—Sideri, D. I.; Llamina, A. N. The composition of soil colloidal clay. *Soil Sci.* 54, 1942 (83-100).  
      **631.414.2: 549**—Alexander, L. T.; Faust, G. T.; Hendricks, S. B., et al. Relationship of the clay minerals, halloysite and endellite. *Amer. Miner.* 28, 1943 (1-18).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.414.2 : 549—Haddock, J. L.** Identification of clay minerals in some Iowa and New England soil profiles. *Iowa St. Coll. J. Sci.* 18, 1943 (42-44). VII, 1
- 631.414.2 : 549—Humbert, R. P.; Marshall, C. E.** Mineralogical and chemical studies of soil formation from acid and basic igneous rocks in Missouri. *Missouri Agric. Expt. Sta. Res. Bull.* 359, 1943, pp. 60. VI, 4
- 631.414.2 : 549—Jacob, A.** Studies of the composition of the clay fraction of soil. *Bodenk. Pflernähr.* 29, 1943 (219-232). [G.] VI, 4
- 631.414.2 : 549—Kelley, W. P.; Page, J. B.** Criteria for the identification of the constituents of soil colloids. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (175-181).
- 631.414.2 : 549—Mitra, R. P.; Bagchi, S. N.; Ray, S. P., et al.** Differentiation of hydrogen clays and hydrogen bentonites and identification of mineral constituents contained in them by electro-chemical methods. II. Montmorillonitic clays and bentonites. *Indian J. Agric. Sci.* 13, 1943 (18-28). VII, 1
- 631.414.2 : 549—Page, J. B.** Differential thermal analysis of montmorillonite. *Soil Sci.* 56, 1943 (273-283).
- 631.414.2 : 549—Ross, C. S.** Geochemistry. *J. Wash. Acad. Sci.* 33, 1943 (225-235). VII, 1
- 631.414.2 : 549—Nagelschmidt, G.** The mineralogy of soil colloids. *Imp. Bur. Soil Sci. Tech. Commun.* 42, 1944, pp. 33.
- 631.414.2 : 549—Nutting, P. G.** The formation of colloid from halloysite in dilute acid solutions. *J. Wash. Acad. Sci.* 34, 1944 (110-112). C.A. 38 (3223). VII, 4
- 631.414.2 : 551.41—Nikiforoff, C. C.** Hardpan and micro-relief in certain soil complexes of California. *U.S.D.A. Tech. Bull.* 745, 1941, pp. 45. IV, 6
- 631.414.2 : 551.577—Raychaudhuri, S. P.** Influences of mean annual rainfall and altitude above sea-level on the composition of clay fractions of Indian lateritic soils. *Science and Culture* 7, 1942 (620). VI, 1
- 631.414.2 : 551.577—Vanderford, H. B.** Variations in the silt and clay fractions of loessial soils caused by climatic differences. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (83-85).
- 631.414.2 : 581.144.2—Crossley, D. I.** The effect of a compact subsoil horizon on root penetration. *J. Forestry* 38, 1940 (794-796). For. Abs. 2 (293). IV, 5
- 631.414.2 : 631.413—Mitra, R. P.; Ghosh, K. C.** Effect of non-electrolytes on the pH and specific conductivity of hydrogen-clay soil. *J. Indian Chem. Soc.* 19, 1942 (399-400). B.C.A.A.I. 1943 (172).
- 631.414.2 : 631.413—Mitra, R. P.; Ray, S. P.** Free and titratable acids per particle of subfractions of hydrogen-clay. *J. Indian Chem. Soc.* 19, 1942 (401-402). B.C.A.A.I. 1943 (172). VI, 4
- 631.414.2 : 631.413—Mitra, R. P.; Sinha, R. K.; Ray, S. P.** Properties of sub-fractions of hydrogen clay prepared from Indian soils. II. *Indian J. Agric. Sci.* 12, 1942 (638-647).
- 631.414.2 : 631.413—Mukherjee, J. N.; Mitra, R. P.; Bagchi, S. N., et al.** Differentiation of hydrogen clays and hydrogen bentonites and identification of mineral constituents contained in them by electrochemical methods. I. Kaolinite and kaolinitic clays. *Indian J. Agric. Sci.* 12, 1942 (889-901). VI, 3

# BIBLIOGRAPHY OF SOIL SCIENCE

- VII, 3    **631.414.2 : 631.413**—Vergara, E. A. The electrochemical behaviour of the inorganic soil colloid. *An. Soc. Cient. Argentina* 134, 1942 (131-133). C.A. 37 (991).
- 631.414.2 : 631.413**—Mitra, R. P.; Bagchi, S. N.; Ray, S. P. The electrochemical properties of clay minerals and the differentiation of hydrogen clays and hydrogen bentonites by electrochemical methods. II. Montmorillonitic clays and bentonites. *J. Phys. Chem.* 47, 1943 (549-553).
- 631.414.2 : 631.413**—Mukherjee, J. N.; Mitra, R. P.; Mitra, D. K. The electrochemical properties of clay minerals and the differentiation of hydrogen clays and bentonites by electrochemical methods. I. Kaolinite and kaolinitic clays. *J. Phys. Chem.* 47, 1943 (543-549).
- IV, 4    **631.414.2 : 631.414.3**—Nitzsch, W. von. Structure of the hydrate shell of inorganic soil colloids. *Kolloid-Ztschr.* 93, 1940 (110-115). C.A. 35 (1558). [G.]
- V, 3    **631.414.2 : 631.414.3**—Marshall, C. E.; Bergman, W. E. The electrochemical properties of mineral membranes. II. Measurement of potassium-ion activities in colloidal clays. *J. Phys. Chem.* 46, 1942 (52-61).
- 631.414.2 : 631.414.3**—Nitzsch, W. von. Speculations on the mode and effect of the accumulation of liquids, gases and ions within the adsorption complex, and some consequences relating to the properties of arable soils. *Bodenk. PflErnähr.* 30, 1942 (180-189). [G.]
- VI, 2    **631.414.2 : 631.414.3**—Raychaudhuri, S. P.; Ghani, A. K. M. Q. Studies on the physico-chemical and electrokinetic properties of gels of silicic acid and aluminium hydroxide and some synthetic and natural aluminosilicates, specially in relation to ion-exchange phenomena. *J. Indian Chem. Soc.* 19, 1942 (311-330).
- 631.414.2 : 631.414.3**—Alten, F.; Loofmann, H. Possibility, nature and action of the accumulation of solutions, gases and ions on the sorption complex, and its effects on the agricultural properties of soils. *Bodenk. PflErnähr.* 31, 1943 (125-128). C.A. 38 (2777). [G.]
- 631.414.2 : 631.416**—Mukherjee, J. N.; Mitra, R. P.; Bannerjee, S. Alterations in the properties of hydrogen clays on the removal of free inorganic oxides contained in them. I. *Indian J. Agric. Sci.* 12, 1942 (303-312).
- V, 6    **631.414.2 : 631.416**—Mukherjee, J. N.; Mitra, R. P.; Chakravorty, S. K. Properties of sub-fractions of hydrogen clay prepared from Indian soils. *Indian J. Agric. Sci.* 12, 1942 (291-302).
- VI, 2    **631.414.2 : 631.433.1**—Mathy, W. The influence of subsoil compaction on the movement of air and water in soil. *Kühn-Archiv* 54, 1940 (171-226). C.A. 36 (4948). [G.]
- IV, 3    **631.414.2 : 631.434**—Nitzsch, W. von ; Czeratzki, W. The nature and susceptibility to modification of soil colloids and their importance in crumb formation and properties. *Bodenk. PflErnähr.* 18, 1940 (1-50). C.A. 35 (250). [G.]
- IV, 4    **631.414.2 : 631.44**—Beater, B. E. Concretions and refractory deposits in some Natal coastal soils. *Soil Sci.* 50, 1940 (313-329). C.A. 35 (2255).
- V, 1    **631.414.2 : 631.547.2**—Papadakis, J. S. An important effect of soil colloids on plant growth. *Soil Sci.* 52, 1941 (283-290).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.414.2.025—Avgustinnik, A. I. The role of ions in the thixotropy of clays. *Keram. Shorn.* No. 11, 1940 (20-24). C.A. 38 (673).
- 631.414.3—Kargin, V. A. Adsorption of electrolytes by silicic acid, sesquioxides and their mixed gels. *Pedology* No. 11, 1939 (3-16). [R.] IV, 2
- 631.414.3—Paramonova, V. I.; Tschul'kov, P. M. Exchange of uni- and multivalent ions in soils and glauconite. *Kolloid. Zh.* 5, 1939 (185-191). B.C.A.B. III, 1941 (30). IV, 4
- 631.414.3—Gollan, J., Jr.; Mallea, O. The adsorption complex of soils. *Rev. Cent. Estud. Ing. Quim. Univ. Santa Fé* No. 15, 1940 (107-118). C.A. 36 (2067).
- 631.414.3—Gorbunov, N. I. Significance of the forms of union for the desorption of cations. *Pedology* No. 3, 1940 (54-67). [R.g.] IV, 1
- 631.414.3—Saidel, T. New results of investigations into the solubility laws of cationic exchange in soils. *Bodenk. Pflernähr.* 21, 22, 1940 (601-620). *ForschDienst.* 11 (53). [G.]
- 631.414.3—Shukla, K. P.; Nayar, M. R. Modified equations for adsorption and base exchange in soils. *Curr. Sci.* 10, 1941 (201-204). C.A. 35 (7089).
- 631.414.3—Mattson, S. Laws of ionic exchange. *LantbrHögsk. Ann.* 1942 (56-73). [E.] VI, 2
- 631.414.3—Ogg, C. L. Base exchange equations applied to Iowa soils. *Iowa St. Coll. J. Sci.* 17, 1942 (103-104). VI, 2
- 631.414.3—Bray, R. H. Ionic competition in base-exchange reactions. *J. Amer. Chem. Soc.* 64, 1943 (954-963). E.S.R. 89 (280). VII, 1
- 631.414.3—Saidel, T. Interpreting experimental results with exchange reactions. *Bodenk. Pflernähr.* 29, 1943 (232-244). [G.]
- 631.414.3—Magistad, O. C.; Fireman, M.; Mabry, B. Comparison of base-exchange equations founded on the law of mass action. *Soil Sci.* 57, 1944 (371-379). VII, 5
- 631.414.3 : 539.215—Jackson, M. L.; Truog, E. Influence of grinding soil minerals to near molecular size on their solubility and base exchange properties. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (136-143). IV, 1
- 631.414.3 : 546.13—Butkevich, V. V.; Mishchenko, Yu. M. The effect of chlorine on the absorbing complex of the soil and on the composition of aqueous extracts from the soil. *Gedroiz Inst. Fert. Use of Disinfectants for Increasing Yields* 1939 (39-42). C.A. 36 (5302).
- 631.414.3 : 546.23—Gile, P. L.; Lakin, H. W. Effect of different soil colloids on the toxicity of sodium selenite to millet. *J. Agric. Res.* 63, 1941 (559-581).
- 631.414.3 : 546.27—Bobko, E. V.; Panova, A. V. Boron absorption in soils. *Pedology* No. 12, 1940 (34-39). [R.g.] IV, 5
- 631.414.3 : 547.96—Drozdetsky, P. A. Absorption of tannin and casein by soils saturated with different cations. *Pedology* No. 11, 1939 (55-61). [R.e.] IV, 2
- 631.414.3 : 547.96—Ensminger, L. E.; Gieseking, J. E. The absorption of proteins by montmorillonitic clays and its effect on base-exchange capacity. *Soil Sci.* 51, 1941 (125-132). IV, 3
- 631.414.3 : 547.96—Ensminger, L. E.; Gieseking, J. E. Resistance of clay-adsorbed proteins to proteolytic hydrolysis. *Soil Sci.* 53, 1942 (205-209). V, 4

# BIBLIOGRAPHY OF SOIL SCIENCE

- 631.414.3 : 549—Hendricks, S. B.** Base exchange of the clay mineral montmorillonite for organic cations and its dependence upon adsorption due to Van der Waals forces. *J. Phys. Chem.* 45, 1941 (85-81).
- IV, 6 **631.414.3 : 549—Schachtschabel, P.** The fixation of cations and the determination of sorption carriers in soil. *Bodenk. PflErnähr.* 23, 1941 (1-17). [G.]
- V, 3 **631.414.3 : 549—Schachtschabel, P.** The fixation of cations and the determination of the sorption carriers in soil. *Landw. Jahrb.* 91, 1941 (355-368). [G.]
- VII, 2 **631.414.3 : 549—Schachtschabel, P.** Investigations of sorption in soils. *ForschDienst. Sonderh.* 16, 1942 (87-90). C.A. 37 (4510).
- VI, 4 **631.414.3 : 549—Schachtschabel, P.** The formation and determination of clay minerals. *Bodenk. PflErnähr.* 29, 1943 (213-219). [G.]
- VII, 1 **631.414.3 : 549—Elgabaly, M. M.; Jenny, H.** Cation and anion interchange with zinc montmorillonite clays. *J. Phys. Chem.* 47, 1943 (399-408).
- IV, 6 **631.414.3 : 631.413.1—Nikol'sky, B. P.; Paramonova, V. I.** The equivalence of base exchange in soils. *Khim. Sotsial. Zemled.* No. 4, 1940 (56-60). [R.]
- IV, 5 **631.414.3 : 631.415.1—Dmitrenko, O. I.** Molecular absorption of electrolytes in mixed gels, permutites and soils. *Khim. Sotsial. Zemled.* No. 5, 1940 (46-51). *Pedology* No. 12, 1940 (81).
- IV, 4 **631.414.3 : 631.415.1—Paramonova, V. I.** The effects of acids and bases on the adsorption capacity of soils and glauconite. *Kolloid. Zh.* 6, 1940 (259-274). C.A. 35 (2655).
- IV, 4 **631.414.3 : 631.415.1—Paramonova, V. I.; Grigorov, O. N.; Nikol'sky, B. P.** The effect of pH on base exchange in chernozem. *Kolloid. Zh.* 6, 1940 (249-258). C.A. 35 (2657).
- V, 1 **631.414.3 : 631.416.2 : 546.16—Dickman, S. R.; Bray, R. H.** Replacement of adsorbed phosphate from kaolinite by fluoride. *Soil Sci.* 52, 1941 (263-273).
- VII, 2 **631.414.3 : 631.435—Gollan, J.; Codoni, M. R.** Cation-exchange capacity of soil fractions. *An. Asoc. Quim. Argentina* 30, 1942 (146-157). *Biol. Abs.* 17 (2411).
- IV, 2 **631.414.3 : 631.811—Broyer, T. C.; Overstreet, R.** Cation exchange in plant roots in relation to metabolic factors. *Amer. J. Bot.* 27, 1940 (425-430). *Biol. Abs.* 14 (1474).
- VI, 3 **631.414.3 : 631.811—Gorbunov, N. I.** The assimilation of adsorbed soil cations by plants when the cations have been introduced into the soil in different order. *Khim. Sotsial. Zemled.* 9, No. 11-12, 1940 (67-72). C.A. 36 (3305).
- V, 1 **631.414.3 : 631.811—Hauser, G. F.** Inactivation of nutrient ions, illustrated by fixation of phosphorus and potash. *Landbouwk. Tijdschr.* 52, 1940 (808-823). *Biol. Abs.* 15 (1784).
- 631.414.3 : 631.811—Loosjes, R.** Does plant growth depend on the ratio of different ions in the soil? I. The reciprocal action between root and soil colloid. *Landbouwk. Tijdschr.* 52, 1940 (836-945). C.A. 37 (6076). *Biol. Abs.* 15 (1420).
- V, 4 **631.414.3 : 631.811—Lundegårdh, H.** Investigations as to the absorption and accumulation of inorganic ions. *LantbrHögsk. Ann.* 8, 1940 (233-404). *Biol. Abs.* 16 (732).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.414.3 : 631.811—Overstreet, R.; Jenny, H.** Studies pertaining to the cation absorption mechanism of plants in soil. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (125-130). IV, 1
- 631.414.3 : 631.811—Schlenker, F. S.** Plant growth in culture solution and availability of ions adsorbed on permutit and aniline black. *Amer. J. Bot.* 27, No. 7, 1940 (525-529). E.S.R. 84 (306). V, 1
- 631.414.3 : 631.811—Albrecht, W. A.** Adsorbed ions on the colloidal complex and plant nutrition. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (8-16). IV, 6
- 631.414.3 : 631.811—Antipov-Karataev, I. N.** Exchange cations and mineral nutrition of plants. *Pedology* No. 1, 1941 (77-88). [R.]
- 631.414.3 : 631.811—Albrecht, W. A.; Graham, E. R.; Shepard, H. R.** Surface relationships of roots and colloidal clay in plant nutrition. *Amer. J. Bot.* 29, 1942 (210-213). V, 4
- 631.414.3 : 631.811—Jenny, H.** Base exchange in soils and in other disperse systems. *Chron. Bot.* 7, 1942 (67-68).
- 631.414.3 : 631.811—Lundegårdh, H.** Electrochemical relations between the root system and the soil. *Soil Sci.* 54, 1942 (177-189). VI, 1
- 631.414.3 : 631.811—Overstreet, R.; Broyer, T. C.; Isaacs, T. L., et al.** Additional studies regarding the cation absorption mechanism of plants in soil. *Amer. J. Bot.* 29, 1942 (227-231).
- 631.414.3 : 631.811—Schlenker, F. S.** Availability of adsorbed ions to plants growing in quartz sand substrate. *Soil Sci.* 54, 1942 (247-251). VI, 1
- 631.414.3 : 631.811—Elgabaly, M. M.; Jenny, H.; Overstreet, R.** Effect of type of clay mineral on the uptake of zinc and potassium by barley roots. *Soil Sci.* 55, 1943 (257-263). VI, 3
- 631.414.3 : 631.811—Singh, D.; Chawla, D. R.** Base-exchange studies. II. Variation in the content of exchangeable bases affecting plant growth. *Indian J. Agric. Sci.* 13, 1943 (368-376). VII, 4
- 631.414.3 : 631.811—Kunin, R.; Robbins, W. R.** The relative availability to plants of exchangeable calcium from soil separates of sand, silt and clay. *Soil Sci.* 57, 1944 (137-142). VII, 3
- 631.414.3 : 631.811.1—Graham, E. R.; Albrecht, W. A.** Nitrate absorption by plants as an anion exchange phenomenon. *Amer. J. Bot.* 30, 1943 (195-198). VI, 3
- 631.414.3.03—Vinokurov, M. A.** Exchange capacity of the mineral and organic complexes in the soil. *Pedology* No. 5, 1941 (33-43). [R.g.] V, 3
- 631.414.3.03 : 549—Radu, I. F.** The base-exchange capacity of soils. *Bodenk. Pflernähr.* 21/22, 1940 (574-580). C.A. 37 (2115). VII, 3
- 631.414.3.03 : 549—Mehlich, A.** Base unsaturation and pH in relation to soil type. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (150-156). [G.] V, 6
- 631.414.3.03 : 631.415.1—Paramonova, V. I.; Materova, E. A.** The significance of the hydrogen ion in the exchange of metallic ions on silicate surfaces. *Pedology* No. 6, 1940 (65-76). [R.g.] IV, 2
- 631.414.3.03 : 631.415.1—Mehlich, A.** Base saturation and pH in relation to liming and nutrient conservation of soil. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (353-361). Biol. Abs. 17 (2182). VII, 1

# BIBLIOGRAPHY OF SOIL SCIENCE

- IV, 1    **631.414.3.03 : 631.417**—Akimtsev, V. V. The exchange capacity of the organic and mineral fractions of soils of eastern Trans-Caucasus. *Pedology* No. 9, 1939 (144-151). [R.]
- VII, 4    **631.414.3.03 : 631.417**—Cernescu, N. The exchange capacity of soils in relation to the clay and humus content. *Inst. Geol. Román. Stud. Tech. Ser. C*, No. 6, 1939 (3-46). C.A. 38 (2151).
- IV, 2    **631.414.3.03 : 631.417**—Peech, M. Chemical studies on soils from Florida citrus groves. *Fla. Agric. Expt. Sta. Bull.* 340, 1939, pp. 50. E.S.R. 83 (309).
- IV, 1    **631.414.3.03 : 631.432.4**—Morgan, M. F. Base exchange capacity and related characteristics of Connecticut soils. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (145-149).
- IV, 5    **631.414.3.03 : 631.435**—Hissink, D. J. The total base-binding capacity (T value) of the mineral complex of soil and of its fractions in various soil types. *Rec. Trav. Chim. Pays-Bas* 59, 1940 (659-664). Biol. Abs. 15 (1189).
- VI, 2    **631.414.3.03 : 631.436**—Andrews, J. S.; Maldonado, J. F. Effect of temperature upon the base-exchange capacity of clays. *J. Agric. Univ. P. R.* 24, 1940 (133-142). C.A. 36 (4647).
- V, 2    **631.414.3.03 : 631.436**—Colón, A. A. The effect of temperature upon the base-exchange capacity of clays. *J. Agric. Univ. P. R.* 24, 1940 (133-142). E.S.R. 85 (731).
- IV, 4    **631.414.323**—Karlsson, N.; Mattson, S. The electrochemistry of soil formation. IV. The effect of salts on amphoteric colloids and phosphate fixation. *Lantbruksk. Ann.* 8, 1940 (405-424). C.A. 35 (2256).
- IV, 5    **631.414.323**—Yarusov, S. S. Molecular adsorption of electrolytes in soils. *Khim. Sotsial. Zemled.* No. 6, 1940 (49-57). *Pedology* No. 12, 1940 (81).
- VII, 3    **631.414.323**—Zaitsev, A. A. Absorption of anions by podzolized soils of the Far North. *Pedology* No. 9-10, 1943 (44-56). [R.e.]
- VI, 2    **631.414.324**—Gapon, E. N. Methods for determining the relative absorbabilities of cations by soils. *Trudy LOTICAA* Pt. 2, 1938 (375-406). C.A. 36 (5935).
- VII, 2    **631.414.324 : 631.43**—Winterkorn, H. F.; Moorman, R. B. B. A study of changes in physical properties of Putnam soil induced by ionic substitution. *Proc. Highw. Res. Bd. Wash.* 21, 1941 (415-434). C.A. 37 (3867).
- VII, 3    **631.414.324 : 631.432.3**—Nayar, M. R.; Shukla, K. P. Influence of the size of exchangeable ions on the permeability of soils. *Curr. Sci.* 12, 1943 (206-207). C.A. 38 (607).
- IV, 3    **631.414.324 : 631.432.4**—Eaton, F. M.; Horton, C. R. Effect of exchange sodium on the moisture equivalent and the wilting coefficient of soils. *J. Agric. Res.* 61, 1940 (401-425).
- VI, 1    **631.414.324 : 631.432.4**—Buswell, A. M.; Dudenbostel, B. F. Spectroscopic studies of base exchange materials. *J. Amer. Chem. Soc.* 63, 1941 (2554-2558).
- VII, 2    **631.414.324 : 631.811**—Pavlovski, G.; Mavrodineanu, R. The soluble and exchangeable bases in soils. *An. Inst. Cerc. Agron. Román.* 12, 1941 (167-171). C.A. 37 (3541).

# FERTILIZERS AND GENERAL AGRONOMY

## 631.415 SOIL REACTION

- 631.415.1—Smolík, L.** Changes in the active pH of soils. *Sborn. Čsl. Akad. Zeměd.* 15, 1940 (13-17). C.A. 36 (6722). VI, 1
- 631.415.1 : 525.5—Kliuchnikov, V. M.** Periodic fluctuations in the pH of soils. *Trudy LOMU.A.1* Pt. 2, 1938 (407-426). C.A. 36 (6722). VI, 1
- 631.415.1 : 525.5—Lüdi, W.** Investigations of the seasonal variation in soil acidity. *Ber. Geobot. Inst. Rübel* (1940) 1941 (31-51). [G.] IV, 6
- 631.415.1 : 525.5—Olson, L. C.** Seasonal variation in soil reaction and the availability of nutrients in Cecil sandy loam. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (162-166). Biol. Abs. 17 (2183). VII, 1
- 631.415.1 : 535.61—Martinec, T.** Effect of ultra-violet rays on reaction of soils. *C.R. Soc. Biol. Paris* 132, 1939 (279-280). B.C.A. 59 (689). IV, 1
- 631.415.1 : 545.371.2—Carrigan, R. A.** Methods of determination of soil pH. *Proc. Fla. Soil Sci. Soc.* 2, 1940 (25-39). VII, 1
- 631.415.1 : 545.371.2—Puffeles, M.** Factors affecting the determination of pH of some Mediterranean soils. *J. Amer. Soc. Agron.* 34, 1942 (954-955). VI, 1
- 631.415.1 : 545.371—Hock, A.** A simple apparatus for pH determinations. *Bodenk. PflErnähr.* 25, 1941 (190-192). [G.]
- 631.415.1 : 545.371—Valkovszky, E.** A simple apparatus for pH determinations in small laboratories. *Mezőg. Kutat.* 14, 1941 (210-214). [H.g.]
- 631.415.1 : 545.371—Andrés, J. A.** A critical study of some methods in use for the determination of pH. *Min. Agric. Madrid* 1942, pp. 31. [Sp.] VII, 2
- 631.415.1 : 545.371—Peng, C.; Chu, T. S.** Development and use of a powdery indicator for rapid and accurate estimation of soil reaction. *Soil Sci.* 57, 1944 (367-369). VII, 4
- 631.415.1 : 545.372—Pustovoitov, N. D.** A volumetric method of preparing suspensions in the determination of soil pH with the quinhydrone electrode. *Pedology* No. 11, 1939 (100-103). [R.] IV, 2
- 631.415.1 : 545.372—Hissink, D. J.** Results of the investigation of the standard soil samples I-VII of the International Society of Soil Science. *Soil Res.* 7, 1940 (1-21). C.A. 34 (7505). IV, 2
- 631.415.1 : 545.372—Chapman, H. D.; Axley, J. H.; Curtis, D. S.** The determination of pH at soil moisture contents approximating field conditions. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (191-200). IV, 6
- 631.415.1 : 545.372—Doughty, J. L.** The advantages of a soil paste for routine pH determination. *Sci. Agric.* 22, 1941 (135-138). V, 1
- 631.415.1 : 545.372—Haas, A. R. C.** The pH of soils at low moisture content. *Soil Sci.* 51, 1941 (17-39). IV, 3
- 631.415.1 : 545.372—Hock, A.** Soil pH measurements with the aid of the antimony electrode. *Bodenk. PflErnähr.* 25, 1941 (164-178). [G.] V, 2
- 631.415.1 : 545.372—Bailey, E. H.** The importance of agitation of the soil suspension with the glass electrode. *Soil Sci.* 55, 1943 (143-146). VI, 3



# BIBLIOGRAPHY OF SOIL SCIENCE

- VII, 2    **631.415.1 : 545.372**—Davis, L. E. Measurements of pH with the glass electrode as affected by soil moisture. *Soil Sci.* 56, 1943 (405-422).
- V, 5    **631.415.1 : 545.372 : 549.67**—Marshall, C. E.; Bergman, W. E. The electrochemical properties of mineral membranes. III. The estimation of ammonium-ion activities. IV. The measurement of ammonium-ion activities in colloidal clays. *J. Phys. Chem.* 46, 1942 (325-334).
- VI, 2    **631.415.1 : 545.372 : 549.67**—Marshall, C. E.; Krinbill, C. A. The electrochemical properties of mineral membranes. V. Beidellite membranes and the determination of sodium. *J. Amer. Chem. Soc.* 64, 1942 (1814-1819).
- VII, 1    **631.415.1 : 545.372 : 549.67**—Marshall, C. E. The use of membrane electrodes in the study of soils. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (182-186). *Biol. Abs.* 17 (2181).
- 631.415.1 : 546.22**—Aquino, D. I.; Sornbitto, E. P. Studies on sulfonation in soils. *Philipp. Agricul.* 29, 1940 (342-349).
- VII, 1    **631.415.1 : 546.22**—Wang, T. H. Effect of sulphur applied as fertilizer on the pH value of Shaowu soil. *J. Chinese Chem. Soc.* 8, 1941 (152-159). *B.C.A.B.* III, 1943 (199). [E.]
- VII, 4    **631.415.1 : 546.22**—Ratsek, J. C. Effect of sulphur particle size and of aluminum sulphate on rate of soil acidification. *Proc. Amer. Soc. Hort. Sci.* 43, 1943 (281-283). *C.A.* 38 (3769).
- IV, 6    **631.415.1 : 581.144.2**—Kaserer, H. The influencing of the soil by plants in the root zone. *Bodenk. Pflernähr.* 21/22, 1940 (697-706). *ForschDienst.* 11 (74). [G.]
- VI, 1    **631.415.1 : 581.192**—McNair, J. B. Soil acidity in relation to cyanogenetic glucoside production. *Lloydia* 5, 1942 (208-221).
- VII, 2    **631.415.1 : 581.5**—Nikolsky, N. N. The development of soil acidity as a result of soil-forming processes, and the role of plant formations. *Shorn. Pam. W. R. Williams*, 1942 (427-432). [R.]
- VII, 2    **631.415.1 : 616.936**—Unti, O. The pH of soils and foci of anopheles infestation and the epidemiology of malaria in Brazil. *Arg. Hig. Saude Pub.* 7, 1942 (125-158). *C.A.* 37 (1814).
- IV, 2    **631.415.1 : 631.414.3**—Smirnova, K. M. Role of hydrogen ion in the absorption capacity of soils. *Uchen. Zap. Mosh. Gosud. Univ.* 27, 1939 (91-167). *Pedology* No. 6, 1940 (115).
- VII, 2    **631.415.1 : 631.414.3**—Barkan, Ya. G. Determination of the hydrolytic acidity of the soil by successive treatments with solutions of hydrolysable salts. *Trudy TSKhA* No. 4, 1940 (3-12). *C.A.* 37 (2861).
- IV, 1    **631.415.1 : 631.414.3**—Mitra, R. P. On the nature of the reactions responsible for soil acidity. VII. The electrochemical properties of colloidal solutions of hydrogen clays. *Indian J. Agric. Sci.* 10, 1940 (317-343).
- IV, 1    **631.415.1 : 631.414.3**—Mitra, R. P.; Mukherjee, S. K.; Bagchi, S. N. On the nature of the reactions responsible for soil acidity. VI. The variability of the total neutralizable acid of colloidal solutions of hydrogen clays. *Indian J. Agric. Sci.* 10, 1940 (303-316).
- V, 5    **631.415.1 : 631.414.3**—Setzer, J. The neutralization of soil acidity. *Rev. Agric. Piracicaba* 16, 1941 (118-149). [Pt.]

# FERTILIZERS AND GENERAL AGRONOMY

- 631.415.1 : 631.414.3—Mukherjee, J. N.; Chatterjee, B.** V, 5  
Interaction between hydrogen clays and neutral salts. I. The nature of the interaction responsible for the liberation of aluminium. *Indian J. Agric. Sci.* 12, 1942 (105-112).
- 631.415.1 : 631.414.3—Mukherjee, J. N.; Mitra, R. P.** VI, 1  
On the nature of reactions responsible for soil acidity. IX. The acid character of hydrogen clay. *Indian J. Agric. Sci.* 12, 1942 (433-473).
- 631.415.1 : 631.414.3—Mukherjee, J. N.; Mitra, R. P.; Chatterjee, B., et al.** V, 5  
On the nature of reactions responsible for soil acidity. VIII. The acid character of hydrogen clay in relation to some problems of soil science. *Indian J. Agric. Sci.* 12, 1942 (86-104).
- 631.415.1 : 631.416—Olson, L. C.** VI, 3  
Soil acidity and the available nutrients in some soils of Georgia. *Proc. Assoc. S. Agric. Workers* 42, 1941 (93). C.A. 35 (7613).
- 631.415.1 : 631.432.2—Carolus, R. L.; Lucas, R. E.** VII, 1  
Some factors influencing fluctuations in acidity during periods of extreme change in the moisture content of soils. *Proc. Amer. Soc. Hort. Sci.* 42, 1943 (507-510).
- 631.415.1 : 631.433—Gardner, R.; Whitney, R. S.** VI, 3  
The effect of carbon dioxide on soil reaction : II. An apparatus for the electro-metric titration of soil suspensions with carbonated water. *Soil Sci.* 56, 1943 (63-65).
- 631.415.1 : 631.433—Whitney, R. S.; Gardner, R.** VI, 3  
The effect of carbon dioxide on soil reaction. *Soil Sci.* 55, 1943 (127-141).
- 631.415.1 : 631.445—Bailey, E. H.** VII, 4  
Hydrogen-ion concentration of the important soils of the United States in relation to other profile characteristics : I. Pedocal soils. *Soil Sci.* 57, 1944 (443-474).
- 631.415.1 : 631.483—Prescott, J. A.; Arthur, J. I.** VII, 2  
The ultimate pH value of the soil and its relationship to the composition of the clay fraction. *J. Aust. Inst. Agric. Sci.* 9, 1943 (125-126).
- 631.415.1 : 631.811—Bender, W. H.; Eisenmenger, W. S.**  
Intake of certain elements by calciphilic and calciphobic plants grown on soils differing in pH. *Soil Sci.* 52, 1941 (297-307).
- 631.415.1 : 631.811—Albrecht, W. A.; Schroeder, R. A.**  
Plant nutrition and the hydrogen ion. I. Plant nutrients used more effectively in the presence of hydrogen ions. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (195-196).
- 631.415.1 : 634.975—Spurr, S. H.**  
The influence of two *Juniperus* species on soil reaction. *Soil Sci.* 50, 1940 (289-294).
- 631.415.1 : 637.1—Czibulka, F.** VII, 2  
Relationship between the reaction of soils and the suitability of milk for making cheese. *Milchw. Forsch.* 21, 1942 (144-146). C.A. 37 (3518).
- 631.415.3—Howard, A.** IV, 1  
Crab-hole, gilgai and self-mulching soils of the Murrumbidgee irrigation area. *Pedology* No. 8, 1939 (14-21). [E.R.]
- 631.415.3—Basu, J. K.; Tagare, V. D.** VI, 4  
Soils of the Deccan canals. IV. The alkali soils, their nature and management. *Indian J. Agric. Sci.* 13, 1943 (157-181).
- 631.415.3 : 541.134.5—Singh, R. N.**  
The oxidation-reduction potential of "usar" land soils. *Proc. Indian Sci. Cong.* 28, No. 37, 1941. *Biol. Abs.* 16 (1874).

## BIBLIOGRAPHY OF SOIL SCIENCE

- IV, 5    **631.415.3 : 545.372**—McGeorge, W. T.; Martin, W. P. Determination of pH value for alkali soils. *J. Assoc. Off. Agric. Chem.* 24, 1941 (234-244).
- VI, 2    **631.415.3 : 546.284** Kovda, V. A. Movement and accumulation of silicic acid in saline soils. *Trans. Dokuchaev Inst.* 22, 1940 (3-30). *Pedology* No. 1, 1942 (55).
- VI, 3    **631.415.3 : 549**—Feofarova, I. I. Determining the water-soluble minerals of saline soils. *Pedology* No. 12, 1940 (40-52). C.A. 35 (7087). [R. g.]
- IV, 3    **631.415.3 : 549**—Kelley, W. P.; Dore, W. H.; Page, J. B. The colloidal constituents of American alkali soils. *Soil Sci.* 51, 1941 (101-124).
- IV, 6    **631.415.3 : 581.192.6** Orlovsky, N. V.; Krotova, E. A.; Yarkovskaya, A. I. Forage grasses for salinized lands of the Baraba. *Pedology* No. 10, 1939 (25-52). C.A. 35 (4539).
- V, 1    **631.415.3 : 581.192.6**—Scofield, C. S. The Pecos River joint investigation, 1939-1940: soil salinity investigation. *U.S.D.A. Bur. Pl. Indust.* 1941, pp. 191. E.S.R. 85 (310).
- V, 4    **631.415.3 : 581.192.6**—Marshall, J. B. Some observations on the tolerance of salinity by cereal crops in Saskatchewan. *Sci. Agric.* 22, 1942 (492-502).
- VII, 2    **631.415.3 : 581.192.6** Ryzhenkova, M. G. The salt tolerance of some agricultural plants. *Storn. Pam. W. R. Williams*, 1942 (399-402). [R.]
- VII, 4    **631.415.3 : 581.5**—Milne, G.; Calton, W. E. Soil salinity related to the clearing of natural vegetation. *E. Afric. Agric. J.* 10, 1944 (7-11).
- IV, 4    **631.415.3 : 631.411.4**—Harmer, P. M. The occurrence and correction of unproductive alkaline organic soil. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (378-386). *Biol. Abs.* 17 (2179).
- IV, 4    **631.415.3 : 631.414.3**—Mallea, O. An aspect of the salinization of a zone of irrigated land of Mendoza. *An. Soc. Cient. Argentina* 130, 1940 (210-220). C.A. 35 (1919).
- VII, 4    **631.415.3 : 631.415.1**—Kivinen, E. Sulphate or alum soils, their properties and some ideas about their cultivation. *Svenska Vall- o. MosskFören. Kvartalskr.* 6, 1944 (152-164). [Sw.]
- IV, 5    **631.415.3 : 631.415.7** Tikos, B. Methods of recognizing alkaline (sziki) soils in the forest. *Erdész. Lapok* 79, 1940 (716-731). *Biol. Abs.* 15 (987). [H. e.]
- VI, 2    **631.415.3 : 631.416**—Mamaeva, L. Ya. Composition of salt concretions in alkali soils in the Trans-Volga region. *Trans. Dokuchaev Inst.* 22, 1940 (91-104). *Pedology* No. 1, 1942 (55).
- V, 3    **631.415.3 : 631.416.2**—Ternnikova, L. M. Absorption of phosphoric acid by solonchaks soils. *Uchen. Zap. Saratov. Gosud. Univ.* 2, 1939 (45-55). *Pedology* No. 4, 1941 (127).
- 631.415.3 : 631.432**—Olovianishnikov, G. I. The dependence of the formation of salts in ground waters and soils on the properties of the water-bearing layer and the depth of the ground waters. *Probl. Sovet. Pochvoved.* No. 7, 1939 (95-108). C.A. 36 (1276).
- V, 2    **631.415.3 : 631.461**—Greaves, J. E.; Jones, L. W. The survival of microorganisms in alkali soils. *Soil Sci.* 52, 1941 (359-364).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.415.3 : 631.48—Mehta, M. L.** The formation and the reclamation of *thur* lands in the Punjab. *Proc. Punjab Engng. Cong. Pap.* 235, 1940. *Punjab Irrig. Res. Inst. Res. Pub.* 3, No. 4, 1940, pp. 64. IV, 4
- 631.415.3 : 631.48—Sokolovsky, A. N.** Salinized soils as one of the forms of salt manifestation on the earth's surface. *Pedology* No. 7-8, 1941 (3-30). [R.e.] V, 3
- 631.415.3 : 631.48—Sokolovsky, A. N.** Halogenous soils, their significance and role in geochemical processes. *Rept. Acad. Sci. Ukrain. S.S.R. (Cl. Phys.-Chem. Math.)* No. 1, 1941 (8-11). [E.] VI, 4
- 631.415.3 : 631.48—Grin, G. S.** The sources of salinization of soils of the middle Dnieper region. *Rept. Acad. Sci. Ukrain. S.S.R. (Cl. Phys.-Chem. Math.)* No. 3-4, 1942 (61-65). [U.r.e.] VI, 4
- 631.415.3 : 631.48—Sokolovsky, A. N.** New data on the genesis of saline soils. *Rept. Acad. Sci. Ukrain. S.S.R. (Cl. Phys.-Chem. Math.)* No. 3-4, 1942 (41-46). [U.r.e.]
- 631.415.3 : 631.48—Yarovenko, A. T.** Some notes on deep sources of salts in solonchaks of the Dnieper-Donets basin. *Rept. Acad. Sci. Ukrain. S.S.R. (Cl. Phys.-Chem. Math.)* No. 3-4, 1942 (55-59). [U.r.e.] VI, 4
- 631.415.3 : 631.67—Biriukova, A. P.** The rate of natural desalinization of soils. *Pedology* No. 7, 1942 (15-25). [R.e.] VI, 2
- 631.415.3 : 631.67—Zonn, S. V.** The salt regime of the sands of the Kara-Kum desert under conditions of irrigation and a high water table. *Pedology* No. 5-6, 1942 (26-37). [R.e.] VI, 2
- 631.415.3 : 631.67—Kovda, V. A.; Shavrygin, P. I.; Gevel'son, T. A.** Dynamics of the alkalinity of soil solutions with irrigation. *Pedology* No. 2-3, 1944 (65-71). [R.e.] VII, 4
- 631.415.3 : 633.31—Letunov, P. A.** The role of herbage in control of salinity in soil under irrigation. *Vest. S.-Kh. Nauk. Agrotekh.* No. 1, 1940 (96-106). Herb. Abs. 13 (214). VII, 2
- 631.415.36—Konakov, M. K.** The soils of the Mochara River region and methods for improving them. *Probl. Sovet. Pochvoved.* No. 7, 1939 (109-122). C.A. 36 (1127). VI, 3
- 631.415.36—Bespalov, N. D.** Experimental leaching of saline soils in the Vakhsh valley. *Pedology* No. 5, 1940 (46-58). [R.] IV, 2
- 631.415.36—Snyder, R. S.; Kulp, M. R.; Baker, G. O., et al.** Alkali reclamation investigations. *Idaho Agric. Expt. Sta. Bull.* 233, 1940, pp. 34. IV, 6
- 631.415.36—Sokolovsky, A. N.; Mozheiko, A. M.; Grinchenko, A. M., et al.** Amelioration of solonets soils of the middle Dnieper. *Dokl. Akad. S.-Kh. Nauk* No. 7, 1941 (37-40). [R.] V, 2
- 631.415.36—Volobuev, V. R.** Theoretical problems of the leaching of saline soils. *Pedology* No. 5, 1941 (20-32). [R.g.] V, 3
- 631.415.36—Arany, A.** The possibilities of improving Hungarian szik soils. *Bodenk. PflErnähr.* 29, 1943 (50-74). [G.] VI, 4
- 631.415.36—Mahmoud, A.** The alkali soils of Birket el Hagg. *Bull. Un. Agric. Égypte* 42, 1944 (1-7). [F.] VII, 4
- 631.415.36 : 546.22—McGeorge, W. T.; Frazier, W. A.** Sulfur placement in the fertilization of alkaline soils. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (288-289). IV, 1

# BIBLIOGRAPHY OF SOIL SCIENCE

- VI, 4    **631.415.36 : 546.226**—Kazakov, V. E. Amelioration of the chemical and physical properties of solonets soils by chemicals. *Kazakh. S.-Kh. Inst. Alma-Ata*, 1939, pp. 91. [R.]
- VII, 4    **631.415.36 : 581.144.2**—Ratner, E. J. The physiological effect of soil alkalinity and the ameliorative role of the root systems of plants on solonets. *Pedology* No. 4-5, 1944 (205-227). [R.e.]
- VII, 3    **631.415.36 : 631.51**—Kovda, V. A. The peculiar nature of the gypsum-lime and solonets horizons of the southern and southeastern U.S.S.R. and their significance in ameliorating soils by deep ploughing. *Khim. Sotsial. Zemled.* No. 4, 1941 (31-36). C.A. 37 (710).
- VI, 2    **631.415.36 : 631.67**—Antipov-Karataev, I. N. The theory and practice of the amelioration of solonets soils under irrigation conditions. *Trans. Dokuchaev Inst.* 24, 1940 (7-65). *Pedology* No. 3-4, 1942 (105-106). C.A. 36 (605). [R.e.]
- VI, 2    **631.415.36 : 631.67**—Filippova, V. N.; Fridman, N. G. Changes in chemical properties of solonets soils as a result of amelioration and irrigation. *Trans. Dokuchaev Inst.* 24, 1940 (99-138). *Pedology* No. 3-4, 1942 (106-107). C.A. 36 (605). [R.e.]
- VI, 2    **631.415.36 : 631.67**—Kocherina, E. I. Changes in the physical properties of soils of the solonets complex in the chestnut zone effected by chemical and biological amelioration under irrigation. *Trans. Dokuchaev Inst.* 24, 1940 (181-204). *Pedology* No. 3-4, 1942 (107-108). C.A. 36 (605). [R.e.]
- VI, 2    **631.415.36 : 631.67**—Kriger, R. E. Field experiments on the amelioration of solonets under irrigation. *Trans. Dokuchaev Inst.* 24, 1940 (67-97). *Pedology* No. 3-4, 1942 (106).
- VI, 2    **631.415.36 : 631.67**—Zol'nikov, V. G. Chemical amelioration of solonets soils of the chernozem zones under irrigation. *Trans. Dokuchaev Inst.* 24, 1940 (329-342). *Pedology* No. 3-4, 1940 (108). C.A. 36 (605). [R.e.]
- IV, 3    **631.415.36 : 631.67**—Quayle, W. L. Practical results from the State Experiment farms. *Wyo. Agric. Expt. Sta. Bull.* 243, 1941, pp. 43.
- V, 1    **631.415.36 : 631.67**—Taylor, E. M.; Mehta, M. L. Some irrigation problems in the Punjab. *Indian J. Agric. Sci.* 11, 1941 (137-169).
- VII, 3    **631.415.36 : 631.821.2**—Grinchenko, A. M. Improving solonets soils and solonchic chernozem soils by chemical treatment. *Zap. Kharkov. S.-Kh. Inst.* 2, No. 1, 1939 (227-263). C.A. 37 (1217).
- IV, 2    **631.415.36 : 631.821.2**—Moiseev, I. G. Use of gypsum on chestnut-solonets soils of Eastern Pre-Caucasus. *Pedology* No. 12, 1939 (30-45). [R.e.]
- IV, 6    **631.415.36 : 631.821.2**—Antipov-Karataev, I. N. The chemical amelioration of solonchets in the U.S.S.R. *Khim. Sotsial. Zemled.* No. 1, 1940 (22-32). [R.]
- VI, 3    **631.415.36 : 631.821.2**—Eremin, G. G. An attempt to apply the "sediment-volume" method in determining the quantity of gypsum in chemical amelioration of salinized soil. *Pedology* No. 9, 1940 (52-60). C.A. 35 (6722).
- IV, 3    **631.415.36 : 631.821.2**—Grinchenko, A. M. Physico-chemical properties of solonets and solonchic-like soils of the middle Dnieper region and their reclamation. *Pedology* No. 10, 1940 (22-40). [R.g.]

## FERTILIZERS AND GENERAL AGRONOMY

- 631.415.36 : 631.821.2**—Sambur, G. N.; Babich, P. D.; Khomenko, K. A. The chemical amelioration of forest-steppe solonchiks in the Ukraine. *Khim. Sotsial. Zemled.* No. 9, 1940 (3-12). [R.] IV, 6
- 631.415.7**—Carvalho e Vasconcellos, J. de. Floristic determinations as an aid to soil study. *Rev. Agron. Lisboa* 28, 1940 (113-121). Herb. Abs. 11 (35). IV, 4
- 631.415.7**—Murrill, W. A. Alachua county, Florida, soils and violets. *Ecology* 21, 1940 (512-513). Biol. Abs. 15 (13). IV, 3
- 631.415.7**—Gould, F. W. Plant indicators of original Wisconsin prairies. *Ecology* 22, 1941 (427-429). VI, 4
- 631.415.7**—Thomas, A. S. Ecological factors and indicator plants in tropical Africa. *Chron. Bot.* 7, 1942 (71). For. Abs. 5 (17). IV, 5
- 631.415.7 : 631.416.13**—Rabotnov, T. A. Observations on nitrate content of meadow and forest plants. *Sovet. Bot.* No. 1, 1940 (76-78). Herb. Abs. 11 (103). VI, 3
- 631.415.7 : 631.416.323**—Trelease, S. F. Identification of selenium indicator species of *Astragalus* by germination tests. *Science* 95, 1942 (656-657). Biol. Abs. 16 (2335). E.S.R. 88 (31). VII, 3
- 631.415.7 : 632.51**—Goedewaagen, M. A. J. The possibility of determining the pH of soils from the weed population. *Versl. RijkslandbProefsta. Groningen* No. 47A, 1941 (747-757). C.A. 37 (3214). IV, 2
- 631.415.7 : 633.2**—Thomas, A. S. Grasses as indicator plants in Uganda—II. *E. Afric. Agric. J.* 6, 1940 (77-80). V, 1
- 631.415.8**—Spurway, C. H. Soil reaction (pH) preferences of plants. *Mich. Agric. Expt. Sta. Spec. Bull.* 306, 1941, pp. 36. VII, 1
- 631.415.8**—De Vall, W. B. The correlation of soil pH with distribution of woody plants in the Gainesville area. *Proc. Fla. Acad. Sci.* 6, 1943 (9-24). E.S.R. 89 (293). VII, 2
- 631.415.8 : 635**—Watts, V. M.; Cooper, J. R. Influence of varied soil reactions on growth and yield of vegetable crops on Newtonia silt loam and Ruston fine sandy loam soils. *Ark. Agric. Expt. Sta. Bull.* 433, 1943, pp. 32. E.S.R. 89 (445). C.A. 37 (6073). Biol. Abs. 17 (2414).

## 631.416 CHEMICAL COMPOSITION OF SOIL

- 631.416**—Köttgen, P. Periodic fluctuations in the phosphate, lime and potash supplies of different soils. *ForschDienst. Sonderh.* 15, 1941 (57-62). C.A. 38 (1829). VII, 4
- 631.416**—Misu, H. Functional studies on soils. XI-XII, XV-XVI, XVII-XIX, XX-XXII, XXIII-XXVI, XXIX-XXXI. *J. Agric. Chem. Soc. Japan* 17, 1941 (107-114, 230-234, 377-382, 383-388, 485-490, 613-618). [J.]
- 631.416**—Stewart, A. B. Some practical applications of soil research. *Trans. Highl. Agric. Soc. Scot.* 55, 1943 (1-15). VII, 1
- 631.416 : 525.5**—Olson, L. C. Seasonal variation in soil reaction and the availability of nutrients in Cecil sandy loam. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (162-166). Biol. Abs. 17 (2189).

# BIBLIOGRAPHY OF SOIL SCIENCE

- VI, 4     **631.416:546.22—Cultrera, R.; Maccini, L.** The application of sulphur in agriculture. IV. The action of sulphur on the chemical properties of the soil. *Ann. Chim. Appl.* 31, 1941 (202-207). C.A. 35 (6720).
- IV, 4     **631.416 : 546.331.31—Aderikhin, P. G.** The effect of sodium chloride on the dynamics of nutrient elements in a deep chernozem. *Probl. Sovet. Pochvoved.* 9, 1939 (65-77). Pedology No. 10, 1940 (117).
- VI, 2     **631.416 : 547.414.8—Shchepetilnikova, A. M.; Cheremisaova, G.** Reasons for the varying effectiveness of chloropicrin on various soils. *Gedroiz Inst. Fert. Use of Disinfectants for Increasing Yields* 1939 (44-57). C.A. 36 (5605).
- V, 6     **631.416 : 551.48—Kohnke, H.** Runoff chemistry: an undeveloped branch of soil science. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (492-500).  
      **631.416 : 552.323—Hardy, F.; Cripps, E. G.** Subsoil fertility of eroded volcanic ash in St. Vincent, B.W.I. Its assessment by chemical analysis and pot tests. *Trop. Agric. Trin.* 21, 1944 (30-39).
- IV, 4     **631.416 : 581.192—Itallie, T. B. van.** Significance of analyses of crops from phosphoric acid and potash test fields. *Versl. Rijks-landb.Proefsta. Groningen* 45A, 1939 (679-762). C.A. 35 (1564).  
      **631.416 : 581.192—Beeson, K. C.** The mineral composition of crops with particular reference to the soils in which they were grown: a review and compilation. *U.S.D.A. Misc. Pub.* 369, 1941, pp. 164.  
      **631.416 : 581.192—Kuhn, A. O.; Kemp, W. B.** Differences in sugar content of grass associated with soil fertility, growth conditions, and growth habit. *J. Amer. Soc. Agron.* 34, 1942 (672-674).
- VI, 4     **631.416 : 581.192—Lucas, R. E.; Scarseth, G. D.; Sieling, D. H.** Soil fertility level as it influences plant nutrient composition and consumption. *Indiana Agric. Expt. Sta. Bull.* 468, 1943, pp. 43. E.S.R. 88 (737).  
      **631.416 : 619—Maynard, L. A.** Relation of soil and plant deficiencies and of toxic constituents in soils to animal nutrition. *Ann. Rev. Biochem.* 10, 1941 (449-470).
- V, 2     **631.416 : 619—Stewart, A. B.** Soil properties in relation to the occurrence of grass sickness in horses. *J. Agric. Sci.* 31, 1941 (308-319).
- V, 1     **631.416 : 631.414.045.2—Köttgen, P.; Jung, L.** Factors in the availability of soil nutrients. Preliminary communication. *Bodenk. Pflernähr.* 24, 1941 (257-265). [G.]
- IV, 5     **631.416 : 631.415.1—Pech, M.** Availability of ions in light sandy soils as affected by soil reaction. *Soil Sci.* 51, 1941 (473-486).
- VII, 1     **631.416 : 631.432.2—Köttgen, P.** The dependence of the easily-soluble fraction of nutrients upon the current moisture content of the soil. *Bodenk. Pflernähr.* 29, 1943 (323-342). [G.]
- V, 5     **631.416 : 631.452—Setzer, J.** The rapid estimation of the cropping possibilities of a given soil. *Bol. Soc. Brasil. Agron.* 3, 1940 (373-419). [Pt.]
- VI, 3     **631.416 : 631.472—Gardner, R.** Why is subsoil unproductive? *Colo. Agric. Expt. Sta. Bull.* 464, 1941, pp. 7. C.A. 36 (2362). Biol. Abs. 17 (852).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.416 : 631.51—Schneider, R.** The mobility and distribution of potash and phosphoric acid in arable soils with a compressed intermediate layer. *Kühn-Archiv* 54, 1940 (227-257). C.A. 36 (4949). [G.] VI, 2
- 631.416 : 631.51—Kivinen, E.** The mobility of plant nutrients in soil. *Maut. Aikak.* 13, 1941 (67-80). C.A. 37 (6075). VII, 2
- 631.416 : 631.51—Whiteside, E. P.; Smith, R. S.** Soil changes associated with tillage and cropping in humid areas of the United States. *J. Amer. Soc. Agron.* 33, 1941 (765-777). Biol. Abs. 15 (2257). V, 2
- 631.416 : 631.51—Giddens, J.; Garman, W. H.** Some effects of cultivation on the Piedmont soils of Georgia. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (439-446). V, 5
- 631.416 : 631.58—Demolon, A.; Bastisse, E. M.** Lysimeter studies of the transformations in calcareous soils. *Ann. Agron.* 10, 1940 (215-230). C.A. 38 (2149). VII, 4
- 631.416 : 631.58—Sândoiu, F. C.; Enicov, C.** The cultivation of soils and the penetration of nutrient substances. *An. Inst. Cerc. Agron. Român.* 12, 1941 (15-39). C.A. 37 (4177). VII, 2
- 631.416 : 631.58—Brown, A. L.; Wyatt, F. A.; Newton, J. D.** Effects of cultivation and cropping on the chemical composition of some Western Canada prairie soils. Part II. *Sci. Agric.* 23, 1942 (229-232). VI, 2
- 631.416 : 631.58—Mühr, G. R.; Smith, H. W.; Weldon, M. D.** Influence of cropping, manure, and manure plus lime on exchange capacity, exchangeable calcium, pH, oxidizable material, and nitrogen of a fine-textured soil in eastern Nebraska. *J. Amer. Soc. Agron.* 35, 1943 (107-113). Biol. Abs. 17 (1283).
- 631.416 : 631.58 : 631.67—Greaves, J. E.; Hirst, C. T.** The influence of cropping on the nitrogen, phosphorus and organic matter of the soil under irrigation farming. *Utah Agric. Expt. Sta. Bull.* 310, 1943, pp. 19. VII, 4
- 631.416 : 631.81—Kushnikov, V. I.** Role of mineral fertilizers in altering the fertility of northern non-chernozem soils. *Zap. Leningr. S.-Kh. Inst.* 1, 1938 (97-110). Pedology No. 8, 1939 (116). IV, 1
- 631.416 : 631.81—Joshi, K. G.** Depth of sampling for soil analysis. *Nagpur Agric. Coll. Mag.* 15, No. 1, 1940. Curr. Sci. 10 (102). IV, 4
- 631.416 : 631.81—Obolenskaya, L. I.** The effect of phosphates, lime and manure on virgin soils. *Trudy Zonal. Inst. Zern. Khoz. Rayon. Nechernozem. Polosy Vopr. Agrotekh.* No. 9, 1940 (43-49). C.A. 37 (2866). VII, 3
- 631.416 : 631.81—Peevy, W. J.; Smith, F. B.; Brown, P. E.** Effects of rotational and manurial treatments for twenty years on the organic matter, nitrogen, and phosphorus contents of Clarion and Webster soils. *J. Amer. Soc. Agron.* 32, 1940 (739-753). IV, 2
- 631.416 : 631.81—Williams, R.** Soil fertility data for a 15-year manurial experiment on hay land. *Welsh J. Agric.* 16, 1940 (132-144). IV, 2
- 631.416 : 631.81—Fraps, G. S.; Fudge, J. F.; Reynolds, E. B.** The effect of fertilization on the nitrogen, active phosphoric acid, and active potash of a Lake Charles clay loam. *J. Amer. Soc. Agron.* 33, 1941 (130-134).



# BIBLIOGRAPHY OF SOIL SCIENCE

- IV, 6    **631.416 : 631.81**—Stinson, F. A. Residual phosphorus and potassium in flue-cured soils of Ontario. *Lighter* 11, No. 3, 1941 (14-15).
- V, 5    **631.416 : 631.81**—Reed, J. F. Available nutrients in fertilized soils at various periods of the year. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (247-251).
- VII, 1    **631.416 : 631.81**—Chadwick, L. C. Nitrogen, phosphorus and potassium content of a silt loam soil following ten years of surface applications of commercial fertilizers. *Proc. Amer. Soc. Hort. Sci.* 42, 1943 (641-645).
- VII, 3    **631.416 : 631.81**—Rigg, T. Some recent advances in soil, fertilizer and plant chemistry in New Zealand. *Cauthron Inst. Soil Past. Res. Pub.* 76, 1943, pp. 8.
- ✓ IV, 4    **631.416 : 632.732**—Joachim, A. W. R.; Kandiah, S. Studies on Ceylon soils. XIV. A comparison of soils from termite mounds and adjacent land. *Trop. Agricult.* 95, 1940 (333-339).
- VI, 1    **631.416 : 633.3**—Moser, F. Influence of leguminous plant additions on the organic matter content and available nutrient supply of Southern soils. *J. Amer. Soc. Agron.* 34, 1942 (711-719).
- 631.416.1**—Stöckli, A. The role of microbial nitrogen in the nutrition of plants. *Schweiz. Landw. Monatsh.* 19, No. 11, 1941, pp. 12. [G.]
- VI, 4    **631.416.1 : 535.21**—Bhat, J. V. Losses of soil-nitrogen contents. *J. Univ. Bombay* 11B, Part 3, 1942 (49-53). B.C.A.B. III, 1943 (141).
- 631.416.1 : 547.973**—Rutzler, J. E., Jr. Anthocyanin development in plants in relation to soil nitrogen. *Minn. Acad. Sci. Proc.* 9, 1941 (20). C.A. 36 (5304).
- IV, 3    **631.416.1 : 551.577**—Alvarez, A. S. Nitrogen in rain water. *Rev. Indust. Agric. Tucumán* 29, 1939 (188-190). Biol. Abs. 15 (109). [Sp.]
- V, 1    **631.416.1 : 631.414.3**—Conrad, J. P. Retention by soils of the nitrogen of several amides. *J. Amer. Soc. Agron.* 33, 1941 (800-810).
- V, 3    **631.416.1 : 631.414.3**—Conrad, J. P. Retention by the soil of the nitrogen of several amino acids. *J. Amer. Soc. Agron.* 34, 1942 (48-58).
- V, 5    **631.416.1 : 631.414.3**—Köttgen, P.; Wang, S.; Jung, L. Dynamics of nitrogenous fertilizers in a black and a brown earth in relation to the release of the phosphoric-acid anion. *Landw. Jahrb.* 91, 1942 (687-717). [G.]
- VI, 4    **631.416.1 : 631.417.4**—Palacios, G.; Bhat, J. V. Influence of cellulose in nitrogen status of soil. *J. Univ. Bombay* 11B, Part 3, 1942 (45-48). B.C.A.B. III, 1943 (141).
- VI, 2    **631.416.1 : 631.432.3**—Matthews, E. D. Effect of drought and rainfall on movement of soil nitrogen in Cecil soils. *Ga. Expt. Sta. Circ.* 137, 1942, pp. 7. E.S.R. 87 (770).
- IV, 4    **631.416.1 : 631.452**—Borden, R. J. Soil fertility as affected by soil nitrogen. *Hawaii. Plant. Rec.* 45, 1941 (39-63).
- IV, 2    **631.416.1 : 631.581**—Ingham, G. Fallowing in relation to nitrogen supply. *J. S. Afric. Chem. Inst.* 23, 1940 (52-58). B.C.A. 59 (816).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.416.11 : 631.414.3**—Ingham, G. Atmospheric ammonia as primary source of nitrogen to plants. *S. Afric. J. Sci.* 36, 1939 (158-163). B.C.A. 59 (754). IV, 1
- 631.416.11 : 631.414.3**—Cornet, I. Sorption of  $\text{NH}_3$  on montmorillonitic clay. *J. Chem. Phys.* 11, 1943 (217-226).
- 631.416.11 : 631.414.3**—Mattson, S.; Koutler-Andersson, E. The acid-base condition in vegetation, litter and humus: VI. Ammonia fixation and humus nitrogen. *LantbrHögsk. Ann.* 11, 1943 (107-134). [E.]
- 631.416.12 : 634.3**—Klotz, L. J.; Sokoloff, V. P. Relation of injury and death of small roots to decline and collapse of citrus and avocado. *Citrus Leaves* 23, No. 1, 1943 (1-3, 22). C.A. 37 (2041). VII, 2
- 631.416.12 : 634.3**—Sokoloff, V. P.; Klotz, L. J. Decline and collapse of citrus trees in relation to nitrite in orchard soils. *Calif. Citrog.* 28, 1943 (290, 308). Hort. Abs. 13 (190). VII, 2
- 631.416.13 : 551.577**—Bruce, A. Periodicity of nitrification. Part II. Rubber area. *Trop. Agricut.* 96, 1941 (28-34). IV, 4
- 631.416.13 : 631.445.55**—Odintsova, S. V. Nitrate formation in deserts. *C.R. Acad. Sci. (U.S.S.R.)* 32, 1941 (578-580). [E.] VI, 2
- 631.416.13 : 631.51**—Albrecht, W. A. Why do farmers plow? *Better Crops with Plant Food* 27, No. 6, 1943 (23-26, 46-48). VI, 4
- 631.416.13 : 631.58**—Alben, A. O.; Sitton, B. G.; Dodge, F. N., et al. Progress report of the influence of cultural treatments upon the nitrate nitrogen of the soil and upon the tree growth and yield of pecans. *Tex. Pecan Grow. Assoc. Proc.* 20, 1940 (43-47). Biol. Abs. 15 (1414). V, 1
- 631.416.2**—Davtian, G. S. Separation of the main groups of soil phosphates. *Probl. Sovet. Pochvoved.* 7, 1939 (149-162). Pedology No. 2, 1941 (98). V, 3
- 631.416.2**—Smith, A. M. Availability of phosphates: what the more recent literature discloses and what it lacks. *Amer. Fert.* 93, No. 8, 1940 (5-6, 24, 26).
- 631.416.2**—Salonen, M. The form in which phosphorus occurs in Finnish soils. *Acta Agralia Fenn.* 48, 1941, pp. 124. [Fig.] IV, 5
- 631.416.2**—Ghani, M. O.; Aleem, S. A. Fractionation of soil phosphorus. II. Chemical nature of the phosphorus fractions. *Indian J. Agric. Sci.* 13, 1943 (142-147). VI, 4
- 631.416.2**—Stelly, M.; Pierre, W. H. Forms of inorganic phosphorus in the C horizons of some Iowa soils. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (139-147). C.A. 37 (5537). Biol. Abs. 17 (1961). VII, 1
- 631.416.2 : 553.97**—Arrhenius, O. Phosphate content of Swedish peats. *Svevrig. Geol. Unders. Arsb.* 34, No. 2, 1940, pp. 18. [Sw.] IV, 1
- 631.416.2 : 631.411.2**—Basu, J. K.; Tagare, V. D. Availability of phosphate in calcareous soils of the Bombay Deccan in relation to sugarcane yields and quality of juice. *Proc. Ann. Conv. Sug. Tech. Assoc. India* 11, 1942 (15-18). C.A. 37 (6072). VII, 2
- 631.416.2 : 631.411.2**—Singh, D.; Nijhawan, S. D. Availability of phosphates in alkaline and calcareous soils. *Indian J. Agric. Sci.* 13, 1943 (134-141). VI, 4
- 631.416.2 : 631.414.3**—Beater, B. E. Soil phosphate studies. *Proc. 13th Ann. Cong. S. Afric. Sug. Tech. Assoc.* 1939 (72-80). Biol. Abs. 17 (575). VI, 2

## BIBLIOGRAPHY OF SOIL SCIENCE

- VII, 4    **631.416.2 : 631.414.3**—Drouineau, G. The distribution and fixation of phosphoric acid in a brown lime-bearing profile after fertilizing with phosphate. *Ann. Agron.* 10, 1940 (245-255). C.A. 38 (2435).
- IV, 3    **631.416.2 : 631.414.3**—Köttgen, P. Reversion and distribution of the phosphoric acid of various organic and inorganic phosphatic fertilizers in podzol soil. *Bodenk. Pflernähr.* 18, 1940 (108-128). C.A. 35 (258). [G.]
- IV, 1    **631.416.2 : 631.414.3**—Moser, F. Phosphorus fixation and the assimilation of fixed phosphates. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (168-172).
- IV, 6    **631.416.2 : 631.414.3**—Ratner, E. I. The role of mobile aluminium of acid soils in the fixation of fertilizer phosphoric acid and in the production of exchange acidity in soils. *Khim. Sotsial. Zemled.* No. 10, 1940 (13-18). [R.]
- VII, 3    **631.416.2 : 631.414.3**—Znamensky, A. V. The physico-chemical properties of the southern chernozem. II. The absorption of phosphoric acid by the soil. *Azovo-Chernomorsk. S.-Kh. Inst. Shorn. Nauch.-Issled. Rab.* 10, 1940 (45-49). C.A. 37 (2859).
- VI, 2    **631.416.2 : 631.414.3**—Askinazi, D. L. The forms of phosphoric acid adsorption in soils in relation to availability. *Khim. Sotsial. Zemled.* 10, No. 1, 1941 (38-46). C.A. 36 (6286).
- IV, 3    **631.416.2 : 631.414.3**—Chandler, W. V. Phosphorus adsorption by five Alabama soils as influenced by reaction, base saturation, and free sesquioxides. *J. Amer. Soc. Agron.* 33, 1941 (1-12).
- IV, 5    **631.416.2 : 631.414.3**—Henderson, W. J.; Jones, U. S. The use of radioactive elements for soil and fertilizer studies. *Soil Sci.* 51, 1941 (283-288).
- IV, 6    **631.416.2 : 631.414.3**—Laatsch, W. The fixation of phosphoric acid by clays. *Bodenk. Pflernähr.* 23, 1941 (17-31). [G.]
- IV, 4    **631.416.2 : 631.414.3**—Lundblad, K. An experiment with phosphate-rich fen soil. *Svenska Valt. o. MosckForen. Kvartalsskr.* 3, 1941 (122-128). [Sw.]
- 631.416.2 : 631.414.3**—Lundblad, K. An experiment with phosphate-rich soil from Svarto fen. *Svenska Valt. o. MosckForen. Medd.* 6, 1941 (287-308). [Sw.]
- V, 2    **631.416.2 : 631.414.3**—Metzger, W. H. Phosphorus fixation in relation to the iron and aluminum of soil. *J. Amer. Soc. Agron.* 33, 1941 (1093-1099).
- 631.416.2 : 631.414.3**—Midgley, A. R. Phosphate fixation in soils—a critical review. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (24-30).
- V, 1    **631.416.2 : 631.414.3**—Raychaudhuri, S. P.; Mukherjee, M. K. Studies on Indian red soils. II. Fixation of phosphates. *Indian J. Agric. Sci.* 11, 1941 (205-219).
- VII, 2    **631.416.2 : 631.414.3**—Schönfeld, A. The interrelationships of different soil properties. I. Research with calcium-poor soil. *Mezög. Kutat.* 14, 1941 (258-271). C.A. 37 (5177).
- 631.416.2 : 631.414.3**—Bear, F. E.; Toth, S. J. Phosphate fixation in soil and its practical control. *Indust. Engng. Chem.* 34, 1942 (49-52). B.C.A.B. III, 1942 (162).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.416.2 : 631.414.3—Bray, R. H.; Dickman, S. R.** Adsorbed phosphates in soils and their relation to crop responses. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (312-320). V, 6
- 631.416.2 : 631.414.3—Coleman, R.** Utilization of adsorbed phosphate by cotton and oats. *Soil Sci.* 54, 1942 (237-246). VI, I
- 631.416.2 : 631.414.3—Copeland, O. L.; Merkle, F. G.** The influence of certain soil treatments upon the fixation and availability of applied phosphates. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (321-327). V, 6
- 631.416.2 : 631.414.3—Moser, F.** Fixation and recovery of phosphate from some lateritic soils. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (328-334).
- 631.416.2 : 631.414.3—Perkins, A. T.; Wagoner, C. E.; King, H. H.** Phosphorus fixation by soil separates and fractions. *Soil Sci.* 53, 1942 (37-41). V, 3
- 631.416.2 : 631.414.3—Rathje, W.** Contributions to knowledge about phosphates. Sixth communication: The phosphate equilibrium in soil. *Bodenk. Pflernähr.* 28, 1942 (129-159). [G.]
- 631.416.2 : 631.414.3—Riehm, H.** Results of investigation, by Egnér's method, of profile samples of soils from the continuous-rye experiment at Halle. A contribution to the study of the movement of phosphoric acid and potash in arable soil. *Bodenk. Pflernähr.* 28, 1942 (234-245). [G.] VI, 1
- 631.416.2 : 631.414.3—Stephens, C. G.; Baldwin, J. G.; Hosking, J. S.** The soils of the parishes of Longford, Cressy, and Lawrence, County Westmorland, Tasmania. 1. A soil survey of the area. 2. Pot experiments with subterranean clover on the Cressy shaley clay-loam. *Aust. Coun. Sci. Indust. Res. Bull.* 150, 1942, pp. 40. VI, 3
- 631.416.2 : 631.414.3—Allison, L. E.** The trend of phosphate adsorption by inorganic colloids from certain Indiana soils. *Soil Sci.* 55, 1943 (333-342). VI, 3
- 631.416.2 : 631.414.3—Davis, F. L.** Retention of phosphates by soils. I. Effect of additions of iron and aluminium chloride upon the retention of phosphorus by virgin Hammond very fine sandy loam. *Soil Sci.* 56, 1943 (457-478). VII, 2
- 631.416.2 : 631.414.3—Gericke, S.** Investigations on the interactions between phosphoric acid and lime in soil. Part II. The behaviour of phosphoric acid in soils of different lime status. *Bodenk. Pflernähr.* 32, 1943 (171-192). [G.] VII, 3
- 631.416.2 : 631.414.3—Kelly, J. B.; Midgley, A. R.** Phosphate fixation: an exchange of phosphate and hydroxyl ions. *Soil Sci.* 55, 1943 (167-176). VI, 3
- 631.416.2 : 631.414.3—Laatsch, W.** The adsorption of phosphoric acid in soil. *Kolloid-Ztschr.* 102, 1943 (60-66). [G.] VI, 4
- 631.416.2 : 631.414.3—Sokolov, A. V.** The determination of water-soluble phosphoric acid in soil. *Pedology* No. 4-5, 1943 (36-40). C.A. 38 (608). [R.e.] VII, 2
- 631.416.2 : 631.414.3—Williams, E. G.** Phosphate fixation in soils. *Scot. J. Agric.* 24, 1943 (156-162). *Amer. Fert.* 99, No. 11, 1943 (5-7, 20, 22).

# BIBLIOGRAPHY OF SOIL SCIENCE

- VII, 2 631.416.2 : 631.414.3—Williams, E. G.; Stewart, A. B. Studies on phosphate fixation in Scottish soils. I. The recovery of added phosphate from a soil of the acid igneous group. *J. Agric. Sci.* 33, 1943 (179-189).
- IV, 5 631.416.2 : 631.414.3 : 549—Murphy, H. F. Clay minerals and phosphate availability. I. Adsorption of phosphate ions by clay minerals. *Proc. Okla. Acad. Sci.* 20, 1940 (79-81). C.A. 35 (3021).
- IV, 5 631.416.2 : 631.414.3 : 549—Murphy, H. F. Clay minerals and phosphate availability. II. The utilization of adsorbed phosphate by plants. *Proc. Okla. Acad. Sci.* 20, 1940 (83-86). C.A. 35 (3022).
- IV, 1 631.416.2 : 631.414.3 : 549—Stout, P. R. Alterations in the crystal structure of clay minerals as a result of phosphate fixation. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (177-182).
- V, 3 631.416.2 : 631.414.3 : 549—Murphy, H. F. Clay minerals and phosphate availability. III. Solubility of retained phosphate. *Proc. Okla. Acad. Sci.* 21, 1941 (81-82). Biol. Abs. 16 (221).
- V, 5 631.416.2 : 631.414.3 : 549—Black, C. A. The penetration of phosphate into the kaolinite crystal. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (157-161).
- VII, 1 631.416.2 : 631.414.3 : 549—Black, C. A. Phosphate fixation by kaolinite and other clays as affected by pH, phosphate concentration and time of contact. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (123-133). C.A. 37 (5538). Biol. Abs. 17 (2177).
- VII, 1 631.416.2 : 631.414.3 : 549—Black, C. A. Phosphate fixation by kaolinitic and other clays. *Iowa St. Coll. J. Sci.* 18, 1943 (13-15).
- VII, 1 631.416.2 : 631.414.3 : 549—Coleman, R. The adsorption of phosphate by kaolinitic and montmorillonitic clays. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (134-138). Biol. Abs. 17 (2178). C.A. 37 (5538).
- VII, 4 631.416.2 : 631.414.3 : 549—Coleman, R. Phosphorus fixation by the coarse and fine clay fractions of kaolinitic and montmorillonitic clays. *Soil Sci.* 58, 1944 (71-78).
- V, 4 631.416.2 : 631.414.3 : 631.436—Robinson, R. R. Phosphorus fixation as affected by soil temperature. *J. Amer. Soc. Agron.* 34, 1942 (301-306).
- VII, 2 631.416.2 : 631.415.1—Ghani, M. O.; Aleem, S. A. Studies on the distribution of different forms of phosphorus in some Indian soils. I. Surface distribution. *Indian J. Agric. Sci.* 13, 1943 (283-288).
- VII, 2 631.416.2 : 631.415.1—Lacerda, D. T. Cause of the effect of  $P_2O_5$  on plants growing in various types of soil. *Rev. Brasil. Quím.* 15, 1943 (155-158). B.C.A.B. III, 1943 (283).
- VI, 3 631.416.2 : 631.417—Pearson, R. W.; Pierre, W. H. Forms of phosphorus in soils and their availability to plants. *Iowa Agric. Expt. Sta. Rept.* Part 1, 1939. C.A. 35 (6044).
- IV, 1 631.416.2 : 631.417—DeLong, W. A.; Sutherland, A. J.; Archer, P. L. Observations on the easily-soluble phosphorus in a soil of the Appalachian upland podsolized type. *Sci. Agric.* 21, 1940 (92-102).
- IV, 1 631.416.2 : 631.417—Pearson, R. W.; Simonson, R. W. Organic phosphorus in seven Iowa soil profiles: distribution and amounts as compared to organic carbon and nitrogen. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (162-167).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.416.2 : 631.417**—Scharrer, K.; Keller, B. The distribution, mineralization and absorption of organic phosphoric-acid compounds in the soil. *Bodenk. PflErnähr.* 19, 1940 (109-124). C.A. 35 (3020). [G.] IV, 5
- 631.416.2 : 631.417**—Allison, F. E.; Pinck, L. A.; Sherman, M. S. Comparative availabilities of organic and inorganic phosphates as shown by the Neubauer method. *J. Amer. Soc. Agron.* 33, 1941 (918-926). IV, 3
- 631.416.2 : 631.417**—Dyer, W. J.; Wrenshall, C. L. Organic phosphorus in soils: I. The extraction and separation of organic phosphorus compounds from soil. *Soil Sci.* 51, 1941 (159-170). IV, 4
- 631.416.2 : 631.417**—Dyer, W. J.; Wrenshall, C. L. Organic phosphorus in soils: III. The decomposition of some organic phosphorus compounds in soil cultures. *Soil Sci.* 51, 1941 (323-329). VII, 2
- 631.416.2 : 631.417**—Pavlovski, G.; Ionescu, I. The organic-phosphorus content of ploughed soils. *An. Inst. Cerc. Agron. Român.* 12, 1941 (161-166). C.A. 37 (3543) IV, 5
- 631.416.2 : 631.417**—Pinck, L. A.; Sherman, M. S.; Allison, F. E. The behavior of soluble organic phosphates added to soils. *Soil Sci.* 51, 1941 (351-365). IV, 4
- 631.416.2 : 631.417**—Wrenshall, C. L.; Dyer, W. J. Organic phosphorus in soils: II. The nature of the organic phosphorus compounds. A. Nucleic acid derivatives. B. Phytin. *Soil Sci.* 51, 1941 (235-248). V, 6
- 631.416.2 : 631.417**—Pearson, R. W.; Norman, A. G.; Ho, C. The mineralization of the organic phosphorus of various compounds in soil. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (168-175). VI, 3
- 631.416.2 : 631.417**—Rogers, H. T. The availability of certain forms of organic phosphorus to plants and their dephosphorylation by exo-enzyme systems of growing roots and by soil catalysts. *Iowa St. Coll. J. Sci.* 17, 1942 (108-110). VII, 2
- 631.416.2 : 631.417**—Wynd, F. L.; Noggle, G. R. Associations between phosphorus fractions and other chemical components in soil. *Soil Sci.* 56, 1943 (383-391). IV, 6
- 631.416.2 : 631.417 : 631.811.2**—Rogers, H. T.; Pearson, R. W.; Pierre, W. H. Absorption of organic phosphorus by corn and tomato plants and the mineralizing action of exoenzyme systems of growing roots. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (285-291). V, 4
- 631.416.2 : 631.417 : 631.811.2**—Bertramson, B. R.; Stephenson, R. E. Comparative efficiency of organic phosphorus and of superphosphate in the nutrition of plants. *Soil Sci.* 53, 1942 (215-227). V, 4
- 631.416.2 : 631.417 : 631.86**—Ghani, M. O. Fractionation of phosphoric acid in organic manures. *Indian J. Agric. Sci.* 11, 1941 (954-958). VII, 3
- 631.416.2 : 631.432.21**—Smolck, L. The influence of drying soil on the quantity of available phosphoric acid. *Bodenk. PflErnähr.* 32, 1943 (126-128). [G.] VI, 3
- 631.416.2 : 631.437.36**—Serdobol'sky, I. T. The application of electrodialysis to the replacement of phosphates. *Trans. Dokuchaev Inst.* 21, 1940 (149-167). C.A. 36 (2069). [R.e.] V, 3
- 631.416.2 : 631.44**—Gemmerling, G. V. Characterization of phosphorus compounds in different soil types. *Pedology* No. 6, 1941 (59-64). [R.]

# BIBLIOGRAPHY OF SOIL SCIENCE

- VII, 3     **631.416.2 : 631.445.2**—**Petukhov, M. P.** The mobility of phosphoric acid in soils of various mechanical compositions and degrees of podzolization. *Trudy Perm. S.-Kh. Inst.* 7, No. 3, 1939 (101-116). C.A. 37 (2865).
- VI, 3     **631.416.2 : 631.445.2**—**Kirsanov, A. T.** The effect of the degree of podzolization on the availability of soil and fertilizer phosphates. *Trans. Dokuchayev Inst.* 21, 1940 (107-129). C.A. 36 (2069). [R.e.]
- IV, 1     **631.416.2 : 631.472**—**Iowa Agricultural Experiment Station.** The availability of the phosphorus of different soil horizons. *Iowa Agric. Expt. Sta. Field Projects in Agronomy*, 1940 (33-35). (Mimeo.)
- IV, 1     **631.416.2 : 631.472**—**Pearson, R. W.; Spry, R.; Pierre, W. H.** The vertical distribution of total and dilute acid-soluble phosphorus in twelve Iowa soil profiles. *J. Amer. Soc. Agron.* 32, 1940 (683-696).
- VII, 4     **631.416.2 : 631.472**—**Ghani, M. O.; Aleem, S. A.** Studies on the distribution of different forms of phosphorus in Indian soils. II. Vertical distribution. *Indian J. Agric. Sci.* 13, 1943 (377-381).  
      **631.416.2 : 631.472**—**Stelly, M.** Forms of inorganic phosphorus in the lower horizons of some Iowa soils as indicated by plant availability and chemical methods. *Iowa St. Coll. J. Sci.* 18, 1943 (89-91).
- IV, 2     **631.416.2 : 631.483**—**Zavalishin, A. A.; Verigina, K. V.** Metamorphosis of phosphorus in the humid subtropical regions of the Talysh. *C.R. Acad. Sci. (U.S.S.R.)* 22, 1939 (268-270). *Pedology* No. 5, 1940 (114).
- IV, 4     **631.416.2 : 631.51**—**Ionescu, I.** The effect of ploughing on the mobilization of phosphoric acid in arable soil. *An. Cerc. Inst. Agron. Român.* (1939) 11, 1940 (362-374). [Rm.F.]
- VI, 3     **631.416.2 : 631.821.1**—**Ghani, M. O.; Aleem, S. A.** Effect of liming on the transformation of phosphorus in acid soils. *Indian J. Agric. Sci.* 12, 1942 (873-882).
- V, 2     **631.416.2 : 631.821.1 : 631.83**—**Köttgen, P.; Jung, L.** The effect of Ca and K ions on the solubility of phosphoric acid as judged on a loessial loam soil of the Wetterau. *Bodenk. Pfl. Ernähr.* 25, 1941 (58-64). [G.]  
      **631.416.2 : 631.83**—**Blanck, E.; Bocht, B.** Contribution to the study of the effect of potash on the solubilization of soil phosphoric acid. *J. Landw.* 88, 1941 (185-196). [G.]
- VI, 3     **631.416.2 : 631.83**—**Eriksson, S.** The effect of potash salts on the solubility of soil phosphate. *Kgl. Lantbr. Akad. Tidskr.* 81, 1942, pp. 101. [G.sw.]
- IV, 6     **631.416.2 : 902.6**—**Lorch, W.** The phosphate method and its significance for the settlement history of the newly-won eastern territory. *ForschDienst.* 11, 1941 (439-444). *Umschau* 45, 1941 (116-120). C.A. 36 (5682). [G.]
- IV, 3     **631.416.315**—**Bălăneanu, S.** Contributions to the study of iodine in the soil. *An. Inst. Cerc. Agron. Român.* (1939) 11, 1940 (314-319). [Rm. f.]
- V, 2     **631.416.315**—**Mitchell, J. H.** Sources and distribution of iodine in South Carolina soils with special reference to types of soil and rocks. *Soil Sci.* 52, 1941 (365-371).
- VII, 3     **631.416.315**—**McHargue, J. S.** Iodine in soils, waters and farm products of Kentucky. *Ky. Agric. Expt. Sta. Bull.* 447, 1943, pp. 28.

# FERTILIZERS AND GENERAL AGRONOMY

- 631.416.315 : 616.44-006.5**—Shee, J. C. Soil and fresh-water iodine content in Ireland in relation to endemic goitre incidence. *Sci. Proc. Roy. Dublin Soc.* 22, 1940 (307-314). IV, 1
- 631.416.316**—Murray, M.; Wilson, D. C. Fluorine distribution. *Lancet* 17 April, 1943 (490).
- 631.416.316 : 612.311.1**—Wilson, D. C. Distribution of fluorosis in India and in England. *Nature* 144, 1939 (155). E.S.R. 83 (706). IV, 2
- 631.416.319 : 541.134.5**—Keaton, C. M.; Kardos, L. T. Oxidation-reduction potentials of arsenate-arsenite systems in sand and soil mediums. *Soil Sci.* 50, 1940 (189-207). IV, 1
- 631.416.322**—Demolon, A.; Bastisse, E. A balance-sheet for the sulphur of undisturbed soil. C.R. 212, 1941 (1002-1004). [F.]
- 631.416.322**—Michael, G. The transformations of sulphur in soils. Part I. *Bodenk. Pflernähr.* 33, 1943 (1-18). [G.] VII, 3
- 631.416.322 : 631.414.3**—Conrad, J. P. Retention by soils of the sulfur of various compounds as revealed by subsequent plant growth. *J. Amer. Soc. Agron.* 33, 1941 (37-46). IV, 3
- 631.416.322 : 631.821.1**—MacIntire, W. H.; Shaw, W. M.; Robinson, B. Influence of limestone and dolomite upon sulfate retention from annual additions of potassium sulfate. *Soil Sci.* 51, 1941 (73-84). IV, 3
- 631.416.323**—Lakin, H. W.; Byers, H. G. Selenium occurrence in certain soils in the United States, with a discussion of related topics: sixth report. *U.S.D.A. Tech. Bull.* 783, 1941, pp. 26.
- 631.416.323**—Williams, K. T.; Lakin, H. W.; Byers, H. G. Selenium occurrence in certain soils in the United States, with a discussion of related topics: Fifth report. *U.S.D.A. Tech. Bull.* 758, 1941, pp. 69.
- 631.416.323**—Olson, O. E.; Jörnlin, D. F.; Moxon, A. L. Field studies on methods for determining availability of selenium to plants. *Soil Sci.* 53, 1942 (365-368). V, 5
- 631.416.323**—Trelease, S. F. Bad earth. *Sci. Mo. New York* 54, 1942 (12-28). E.S.R. 87 (37).
- 631.416.323 : 581.192**—Walker, O. J.; Harris, W. E.; Rossi, M. Selenium in soils, grains, and plants in Alberta. *Canad. J. Res.* 1913, 1941 (173-178). IV, 6
- 631.416.323 : 581.192**—Byers, H. G. On the occurrence of selenium in plants. *Chron. Bot.* 7, 1942 (4-6).
- 631.416.323 : 581.192**—Olson, O. E.; Jörnlin, D. F.; Moxon, A. L. The selenium content of vegetation and the mapping of seleniferous soils. *J. Amer. Soc. Agron.* 34, 1942 (607-615). V, 6
- 631.416.323 : 581.192**—Olson, O. E.; Whitehead, E. I.; Moxon, A. L. Occurrence of soluble selenium in soils and its availability to plants. *Soil Sci.* 54, 1942 (47-53). V, 6
- 631.416.323 : 581.192**—Beath, O. A. Toxic vegetation growing on the Salt Wash Sandstone member of the Morrison formation. *Amer. J. Bot.* 30, 1943 (698-707). VII, 2
- 631.416.323 : 631.415.7**—Beath, O. A.; Gilbert, C. S.; Eppson, H. F. The use of indicator plants in locating seleniferous areas in western United States. IV. Progress report. *Amer. J. Bot.* 28, 1941 (887-900). V, 3
- 631.416.327**—Cook, R. L.; Millar, C. E. Some factors affecting boron availability. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (297-301). IV, 1



# BIBLIOGRAPHY OF SOIL SCIENCE

- 631.416.327**—Dennis, A. C.; Dennis, R. W. G. Boron and plant life. Part IV. Developments in agriculture and horticulture, 1939-40. *Fert. Feed. J.* 25-26, 1940-41, Repr. pp. 24.
- VI, 1 **631.416.327**—Hasler, A. The boron content of soils and rocks. *Landw. Jahrb. Schweiz* 56, 1942 (486-498). [G.f.]
- VI, 1 **631.416.327**—Tanada, T.; Dean, L. A. Boron in some Hawaiian soils and crops. *Hawaii. Plant. Rec.* 46, 1942 (65-74).
- V, 4 **631.416.327**—Wherstone, R. R.; Robinson, W. O.; Byers, H. G. Boron distribution in soils and related data. *U.S.D.A. Tech. Bull.* 797, 1942, pp. 32.
- VI, 3 **631.416.327**—Dennis, A. C.; Dennis, R. W. G. Boron and plant life. Part V. Developments in agriculture and horticulture, 1940-42. *Fert. Feed. J.* 29, 1943, Repr. pp. 38.
- VII, 4 **631.416.327**—Reeve, E.; Prince, A. L.; Bear, F. E. The boron needs of New Jersey soils. *N.J. Agric. Expt. Sta. Bull.* 709, 1944, pp. 26.
- V, 5 **631.416.327**; **631.414.3** Parks, R. Q.; Shaw, B. T. Possible mechanisms of boron fixation in soil: I. Chemical. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (219-223).
- VII, 4 **631.416.327**; **631.414.3** Parks, R. Q. The fixation of added boron by Dunkirk fine sandy loam. *Soil Sci.* 57, 1944 (405-416).
- IV, 1 **631.416.327**; **631.415.1** Wolf, B. Factors influencing availability of boron in soil and its distribution in plants. *Soil Sci.* 50, 1940 (209-217).
- VI, 2 **631.416.327**; **631.415.1** Katalymov, M. V. The efficiency of boron fertilizers on podzol and other acid soils. *Pedology* No. 1, 1942 (3-15). [R.]
- IV, 6 **631.416.327**; **631.81** Muhr, G. R. Available boron as affected by soil treatments. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (220-226).
- IV, 1 **631.416.327**; **631.821.1** Midgley, A. R.; Dunklee, D. E. The effect of lime on the fixation of borates in soils. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (302-307).
- V, 2 **631.416.328.4**—Zyrlin, N. G. Amorphous silicic acid in soils and methods of determination. *Sborn. Nauch. Student. Rab.* No. 8, *Pochvoved.* 1940 (26-51). *Pedology* No. 11, 1940 (96).
- VII, 3 **631.416.328.4**—Usov, N. I. The biological accumulation of silicic acid in soils. *Pedology* No. 9-10, 1943 (30-36). [R.e.]
- IV, 1 **631.416.4**—Fraps, G. S.; Fudge, J. F. The availability of the potash of the soil as measured by pot experiments with corn. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (205-208).
- 631.416.4**—Vries, O. de; Hetterschij, C. W. G. Remarks on the determination of the potassium régime of the soil. *Rec. Trav. Chim. Pays-Bas* 59, 1940 (789-792). *Biol. Abs.* 15 (1200).
- IV, 1 **631.416.4**—Vries, O. de; Itallie, T. B. van. Determination of the potash requirement of soils: comparison of pot-culture, chemical analysis, and field experimental methods. *Emp. J. Expt. Agric.* 8, 1940 (295-300).
- 631.416.4**—Damsgaard-Sørensen, P. Exchange of cations in soil. III. Contribution to the general theory of cation exchange and its use in the determination of the exchangeable potassium in soil. *Tidsskr. Planteavl* 46, 1941 (1-150). *C.A.* 37 (5814).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.416.4 : 631.414.3—Galvez, N. L.; Gaerlan, D. The potash-fixing capacity of some Philippine soils. *Philipp. Agrist.* 29, 1940 (616-625). C.A. 35 (2255). IV, 4
- 631.416.4 : 631.414.3—Joffe, J. S.; Levine, A. K. The relation of potassium fixation to the exchange capacity of soils. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (157-161). IV, 1
- 631.416.4 : 631.414.3—Page, J. B.; Bayer, L. D. Ionic size in relation to fixation of cations by colloidal clay. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (150-155). IV, 1
- 631.416.4 : 631.414.3—Pchelkin, V. U.; Kozlova, S. M. Fixation of potassium by soils and the availability of the fixed potassium for plants. *Khm. Sotsial. Zemled.* 9, No. 11-12, 1940 (73-78). C.A. 36 (3307). VI, 3
- 631.416.4 : 631.414.3—Walker, R. K.; Sturgis, M. B. The effects of wetting, drying and treatments on the availability of potassium in soils. *Proc. Assoc. S. Agric. Workers* 41, 1940 (79). C.A. 34 (8147). IV, 4
- 631.416.4 : 631.414.3—Wrenshall, C. L.; Marcello, L. S. Pasture studies. XVIII. The availability, utilization and fixation of potassium applied to permanent pastures. *Sci. Agric.* 21, 1940 (448-458). IV, 4
- 631.416.4 : 631.414.3—Ayres, A. S. Sorption of potassium and ammonium by Hawaiian soils. *Hawaii. Plant. Rec.* 45, 1941 (93-106). IV, 6
- 631.416.4 : 631.414.3—Ayres, A. S. Sorption of potassium and ammonium by soils as influenced by concentration and the degree of base saturation. *Soil Sci.* 51, 1941 (265-272). IV, 4
- 631.416.4 : 631.414.3—Pchelin, A. A. Dynamics of potash in the soil absorbing complex. *Pedology* No. 1, 1941 (50-56). [R.g.] IV, 6
- 631.416.4 : 631.414.3—Wood, L. K.; DeTurk, E. E. The absorption of potassium in soils in non-replaceable forms. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (152-161). IV, 6
- 631.416.4 : 631.414.3—Damsgaard-Sorensen, P. Fixation of potash and phosphoric acid. *Nord. Jordbr.Forsk.* 24, 1942 (116-124). [Da.] VI, 4
- 631.416.4 : 631.414.3—Worsham, W. E.; Sturgis, M. B. Factors affecting the availability of potassium in soils of the lower Mississippi deltas. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (342-347). V, 5
- 631.416.4 : 631.414.3—Albrecht, W. A. Potassium in the soil colloid complex and plant nutrition. *Soil Sci.* 55, 1943 (13-21). VI, 3
- 631.416.4 : 631.414.3—DeTurk, E. E.; Wood, C. K.; Bray, R. H. Potash fixation in corn belt soils. *Soil Sci.* 55, 1943 (1-12). VI, 3
- 631.416.4 : 631.414.3—Hurwitz, C.; Batchelor, H. W. Studies on biological fixation of potassium. *Soil Sci.* 56, 1943 (371-381). VII, 2
- 631.416.4 : 631.414.3—MacIntire, W. H.; Shaw, W. M.; Robinson, B., et al. Potassium retention from annual additions of chloride, sulfate, and nitrate, as influenced by limestone and dolomite. *Soil Sci.* 55, 1943 (321-332). VI, 4
- 631.416.4 : 631.414.3—Wood, L. K.; DeTurk, E. E. The release of fixed potassium to replaceable or water-soluble forms. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (148-153). C.A. 37 (5537). Biol. Abs. 17 (1962). VII, 1

# BIBLIOGRAPHY OF SOIL SCIENCE

- IV, 6     **631.416.4 : 631.416.7**—Clarens, J.; Lacroix, J. Potassium and the soil. Displacement of calcium by potassium. *C.R.* 210, 1940 (787-789). C.A. 35 (4535).
- IV, 1     **631.416.4 : 631.416.7**—Iowa Agricultural Experiment Station. Potash applications on high-lime soils. *Iowa Agric. Expt. Sta. Field Projects in Agronomy*, 1940 (36). (Mimeo.)
- VI, 2     **631.416.4 : 631.416.7**—Köttgen, P. Potassium-lime exchange in a podzol. *Ernähr. Pfl.* 36, 1940 (114-120). C.A. 36 (5938).
- VI, 2     **631.416.4 : 631.432.3**—Meyer, L.; Schneider, R. Investigation of the influence of a packed layer of soil (the floor of the ploughed layer) on the mobility and natural distribution of potassium in arable land. *Ernähr. Pfl.* 36, 1940 (109-113). C.A. 36 (7206).
- VI, 1     **631.416.4 : 631.432.3**—Riehm, H. Results of investigation, by Egnér's method, of profile samples of soils from the continuous-rye experiment at Halle. A contribution to the study of the movement of phosphoric acid and potash in arable soil. *Bodenk. PflErnähr.* 28, 1942 (234-245). [G.]
- 631.416.4 : 631.432.3**—Kime, C. D., Jr. Leaching of potash from a sandy citrus soil of Florida. *Citrus Indust.* 25, No. 1, 1944 (3, 6-7, 18). C.A. 38\* (1597).
- IV, 3     **631.416.4 : 631.435.1**—Knickmann, E. Acidity and available potash in light soils. *ForschDienst.* 9, 1940 (428-439). [G.]
- 631.416.4 : 631.435.1**—Vágl, I. The readily-assimilable K<sub>2</sub>O content of shifting sand soils in the Hungarian Great Plain in relation to black locust plantations. *Erdész. Lapok* 79, 1940 (252-255). For. Abs. 2 (186). [H.g.f.c.]
- IV, 6     **631.416.4 : 631.436.6**—Fine, L. O.; Bailey, T. A.; Truog, E. Availability of fixed potassium as influenced by freezing and thawing. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (183-186).
- 631.416.4 : 631.445.5**—Siniagin, I. I. Potassium in soils of the serozem zone. *Pedology* No. 11, 1940 (55-68). [R.]
- IV, 3     **631.416.4 : 631.58**—Volk, N. J. The effect of soil characteristics and winter legumes on the leaching of potassium below the 8-inch depth in some Alabama soils. *J. Amer. Soc. Agron.* 32, 1940 (888-890). C.A. 35 (1164).
- IV, 6     **631.416.4 : 631.58**—Reuther, W. Effect of certain orchard practices on the potassium status of a New York fruit soil. *Soil Sci.* 52, 1941 (155-165).
- IV, 6     **631.416.4 : 631.811.3**—Bortner, C. E.; Weeks, M. E.; Karraker, P. E. The level of exchangeable potassium in soils under Burley tobacco in the central Bluegrass Region and its relation to the growth of the crop. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (269-273).
- 631.416.4 : 631.811.3**—Schwerdt, K. The relationship between root-soluble potash as determined by Neubauer's method and available potash in arable Thuringian soils. *Bodenk. PflErnähr.* 27, 1942 (221-246). [G.]
- VII, 4     **631.416.4 : 631.811.3**—Bray, R. H. The potash problem in Illinois. *Better Crops with Plant Food* 28, No. 4, 1944 (8-16, 42-44). C.A. 38 (3405).
- V, 3     **631.416.4 : 631.83**—Volk, N. J. Relation of exchangeable potassium in Alabama soils. *J. Amer. Soc. Agron.* 34, 1942 (188-198).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.416.7/8 : 631.415.1—Stalkoff, Z. The influence of soil reaction on the sorption of calcium and magnesium. *Bodenk. PflErnähr.* 21/22, 1940 (581-600). *ForschDienst.* 11 (75). [G.] VI, 3
- 631.416.7/8 : 631.415.1—Stalkoff, Z. Effect of actual acidity (pH) of soils on the sorption of calcium and magnesium. *Ann. Univ. Sofia Fac. Agron. Sylvicult. Livre 1*, 18, 1940 (323-376). C.A. 35 (7088).
- 631.416.7—Bradfield, R. Calcium in the soil: I. Physico-chemical relations. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (8-15).
- 631.416.7—Jenny, H. Calcium in the soil: III. Pedologic relations. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (27-35).
- 631.416.7—Pierre, W. H.; Allaway, W. H. Calcium in the soil: II. Biological relations. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (16-26).
- 631.416.7 : 631.821.1—Doak, B. W. Movement and loss of lime from a soil under pasture. *N.Z. J. Sci. Tech.* 22, 1941 (263A-278A). IV, 6
- 631.416.7 : 631.84—Bizzell, J. A. Lysimeter experiments. V. Comparative effects of ammonium sulfate and sodium nitrate on removal of nitrogen and calcium from the soil. *Cornell Agric. Expt. Sta. Mem.* 252, 1943, pp. 24. *Biol. Abs.* 18 (796). VII, 3
- 631.416.8—Allison, R. V.; Gaddum, L. W. The trace element content of some important soils—a comparison. *Proc. Soil Sci. Soc. Florida* 2, 1940 (68-91). C.A. 36 (2359).
- 631.416.8—Carrigan, R. A.; Rogers, L. H. The trace element content of Florida soils and related plant materials. *Proc. Soil Sci. Soc. Florida* 2, 1940 (92-103). C.A. 36 (2360).
- 631.416.8—Kehoe, R. A.; Cholak, J.; Story, R. V. Spectrochemical study of the normal ranges of concentration of certain trace metals in biological materials. *J. Nutrit.* 19, 1940 (579-592). C.A. 34 (7373).
- 631.416.8—Mitchell, R. L. The distribution of trace elements in soils and grasses. *Proc. Nutr. Soc.* 1, 1944 (183-189).
- 631.416.834/6—Pelíšek, J. The distribution of Li, Rb and Cs in Moravian soils. *Shorn. Čsl. Akad. Zeměd.* 15, 1940 (402-405). C.A. 38 (2152).
- 631.416.843.1—Pelíšek, J. The distribution of barium and strontium in Moravian soil. *Shorn. Čsl. Akad. Zeměd.* 15, 1940 (229-232). C.A. 37 (1552). VII, 3
- 631.416.846 : 631.414.3—MacIntire, W. H.; Shaw, W. M.; Young, J. B., et al. Magnesium retention in soils in relation to form and rates of additions. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (233-237). V, 5
- 631.416.846 : 631.414.3—Stalkoff, Z. The occurrence of difficultly soluble magnesium salts affecting the determination of exchangeable magnesium. *Bodenk. PflErnähr.* 28, 1942 (105-118). [G.] VI, I
- 631.416.846 : 631.458—Balks, R. A case of magnesium deficiency in a heavy loam. *Ernähr. Pfl.* 37, 1941 (52-53). [G.] IV, 5
- 631.416.846 : 631.458—Albrecht, W. A.; Pettyjohn, W. J.; McLean, E. O. Magnesium depletion in relation to some cropping systems and soil treatments. *Soil Sci.* 55, 1943 (447-455). VI, 4

# BIBLIOGRAPHY OF SOIL SCIENCE

- VI, 2    **631.416.847**—Thorne, D. W.; Laws, W. D.; Wallace, A. Zinc relationships of some Utah soils. *Soil Sci.* 54, 1942 (463-468).
- VII, 2    **631.416.847**—Holmes, R. S. Copper and zinc contents of certain United States soils. *Soil Sci.* 56, 1943 (359-370).
- V, 5    **631.416.847**; **631.453**—Staker, E. V.; Cummings, R. W. The influence of zinc on the productivity of certain New York peat soils. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (207-214).
- VII, 1    **631.416.847**; **631.453**—Staker, E. V. Progress report on the control of zinc toxicity in peat soils. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (387-392). *Biol. Abs.* 17 (1961).
- VII, 2    **631.416.847**; **631.85**—Jamison, V. C. The effect of phosphates upon the fixation of zinc and copper in Florida soils. *Citrus Indust.* 24, No. 10, 1943 (3-5, 12-13). *C.A.* 38 (447).
- VII, 3    **631.416.848**—Maliuga, D. P. Cadmium in organisms. *C.R. Acad. Sci. (U.S.S.R.)* 31, 1941 (145-147). *C.A.* 37 (894).
- IV, 5    **631.416.856** Sedletsy, I. D.; Ivanov, D. Distribution of copper in the main soil types of the U.S.S.R. *C.R. Acad. Sci. (U.S.S.R.)* 30, 1941 (51-53). *C.A.* 35 (4140). [E.]
- VII, 2    **631.416.856**—Holmes, R. S. Copper and zinc contents of certain United States soils. *Soil Sci.* 56, 1943 (359-370).
- VI, 3    **631.416.856**; **581.192**—Svanberg, O.; Nydahl, F. The copper content of Swedish hay. *Kgl. Lantbr.Akad. Tidskr.* 80, 1941 (457-480). [Sw.g.]
- VII, 2    **631.416.856**; **581.192**—Teakle, L. J. H.; Turton, A. G. The copper, manganese and zinc content of subterranean clover and oats in Western Australia. *J. Dept. Agric. W. Aust.* 20, 1943 (238-259).
- V, 1    **631.416.856**; **619**—Bennetts, H. W. "Falling disease" of cattle in the south-west. *J. Dept. Agric. W. Aust.* 16, 1941 (133-136).
- V, 6    **631.416.856**; **619**—Bennetts, H. W.; Harley, R.; Evans, S. T. Copper deficiency of cattle and the fatal termination "falling disease." *J. Dept. Agric. W. Aust.* 19, 1942 (96-104).
- 631.416.856**; **619**—Bennetts, H. W. Copper deficiency in sheep. *J. Dept. Agric. W. Aust.* 20, 1943 (40-44).
- V, 4    **631.416.856**; **631.414.3**—Jamison, V. C. Adsorption and fixation of copper in some sandy soils of central Florida. *Soil Sci.* 53, 1942 (287-297).
- VII, 4    **631.416.856**; **631.414.3**—Hasler, A. Retention of copper in soil. *Mitt. Lebensm. Hyg.* 34, No. 1-2, 1943 (79-90). *C.A.* 38 (3404).
- IV, 6    **631.416.856**; **631.415.1**—Steenbjerg, F. Copper in the soil with special reference to reclamation disease. *Tidsskr. Plantavl.* 45, 1940 (259-368). *R.A.M.* 29 (351).
- IV, 3    **631.416.856**; **632.19**—Vinogradov, A. P. Copper content of various soils (the origin of the so-called reclamation disease of cereals). *C.R. Acad. Sci. (U.S.S.R.)* 27, 1940 (1002-1006). *C.A.* 35 (1170). [G.]
- V, 2    **631.416.856**; **632.19**—Hoffmann, W. Pot experiments with humic and sandy soils in further elucidation of copper deficiency as the cause of reclamation disease. *Bodenk. Pfl.Ernähr.* 25, 1941 (121-136). [G.]
- V, 3    **631.416.862.1**—Ganzha, B. A. The effect of aluminium and hydrogen ions on plants in podzolized soils. *Pedology* No. 1, 1941 (22-39). [R.g.]

# FERTILIZERS AND GENERAL AGRONOMY

- 631.416.862.1 : 631.414.324**—Gapon, E. N.; Voshchinskaja, M. A. Exchangeable oxy-aluminium cations in podzolic soils. *Dokl. Akad. S.-Kh. Nauk* No. 5, 1941 (46-48). [R.] V, 1
- 631.416.862.1 : 631.414.324**—Mukherjee, J. N.; Chatterjee, B.; Goswami, P. C. Limiting exchange of aluminium ions from hydrogen-clays on the addition of neutral salts. *J. Indian Chem. Soc.* 19, 1942 (405-407). B.C.A.A.I, 1943 (172). VI, 4
- 631.416.862.1 : 631.415.1**—Arbuzov, I. Active aluminium in soil. *Pedology* No. 4, 1940 (71-75). [R.g.] IV, 2
- 631.416.862.1 : 631.415.1**—Ratner, E. I. The role of mobile aluminium of acid soils in the fixation of fertilizer phosphoric acid and in the production of exchange acidity in soils. *Khim. Sotsial. Zemled.* No. 10, 1940 (13-18). [R.] IV, 6
- 631.416.862.1 : 631.415.1**—Peterburgsky, A. V. Mobility of aluminium and the effect of liming flax soils. *Dokl. Akad. S.-Kh. Nauk* No. 10, 1941 (33-37). [R.] V, 2
- 631.416.862.1 : 631.415.1**—Chatterjee, B.; Paul, M. Interaction between hydrogen clays and neutral salts. II. The role of aluminium in relation to the free and total acids of hydrogen clays. *Indian J. Agric. Sci.* 12, 1942 (113-120). V, 5
- 631.416.865**—Borneman-Starynkevich, I. D.; Borovik, S. A.; Borovsky, I. B. Rare earths in plants and soils. *C.R. Acad. Sci. (U.S.S.R.)* 30, 1941 (227-231). C.A. 35 (8016). VI, 3
- 631.416.865**—Robinson, W. O. The occurrence of rare earths in plants and soils. *Soil Sci.* 56, 1943 (1-6). VI, 4
- 631.416.868.1**—Pelíšek, J. The occurrence of gallium in Moravian soils. *Šborn. Čsl. Akad. Zemled.* 15, 1940 (61-64). C.A. 38 (1311). VII, 3
- 631.416.871.1**—McVickar, M. H. Manganese status of some important Ohio soil types and uptake of manganese by Kentucky bluegrass. *J. Amer. Soc. Agron.* 34, 1942 (122-128).
- 631.416.871.1**—Netto, J. E. de P. Manganese in the soil of the State of São Paulo. *An. Assoc. Quim. Brasil* 1, 1942 (42-54). B.C.A.A.I, 1942 (412).
- 631.416.871.1**—Sherman, G. D.; McHargue, J. S.; Hodgkiss, W. S. Determination of active manganese in soil. *Soil Sci.* 54, 1942 (253-257). VI, 1
- 631.416.871.1**—Sherman, G. D.; Harmer, P. M. The man-ganous-manganic equilibrium of soils. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1942 (398-405). Biol. Abs. 17 (2184). VII, 1
- 631.416.871.1**—Twyman, E. "S. Manganese-deficient soils. *Nature* 154, 1944 (336). VII, 4
- 631.416.871.1 : 546.13.6**—Sherman, G. D.; McHargue, J. S.; Hageman, R. H. The influence of halides on the oxidation of manganese in soil. *Soil Sci.* 56, 1943 (127-134). VI, 4
- 631.416.871.1 : 577.16**—Hester, J. B. Manganese and vitamin C. *Science* 93, 1941 (401). IV, 5
- 631.416.871.1 : 631.414.3**—Kosmaty, E. S. Absorption of manganese. *Sci. Stud. Sug. Res. Inst. Moscow* (1937), 1939 (176-179). C.A. 36 (6286).
- 631.416.871.1 : 631.414.324**—Endrédi, E. The exchangeable manganese content of soils. *Math. Term. Ért.* 59, 1940 (290-297). C.A. 34 (7052). IV, 1

# BIBLIOGRAPHY OF SOIL SCIENCE

- VI, 3     **631.416.871.1 : 631.415.1**—Yarilova, E. A. Studies on the migration of manganese in soils. I. Oxidation-reduction potentials and the alkaline-acid conditions under which manganese compounds may occur. *Trans. Dokuchaev Inst.* 24, 1940 (309-351). C.A. 36 (804). [R.e.]
- VI, 2     **631.416.871.1 : 631.415.1**—Sherman, G. D.; McHargue, J. S.; Hodgkiss, W. S. The production of a lime-induced manganese deficiency on an eroded Kentucky soil. *J. Amer. Soc. Agron.* 34, 1942 (1076-1083).
- VII, 2     **631.416.871.1 : 631.415.1**—Snider, H. J. Some characteristics of manganese. *Better Crops with Plant Food* 27, No. 10, 1943 (6-8, 46-47).
- VII, 1     **631.416.871.1 : 631.415.1**—Snider, H. J. Manganese in some Illinois soils and crops. *Soil Sci.* 56, 1943 (187-195).
- VII, 4     **631.416.871.1 : 631.415.1**—Wahlin, B. Some cases of manganese deficiency in hemp in the summer of 1943. *Växtskyddsmotiser* 8, No. 1, 1944 (11-15). R.A.M. 23 (243). Hort. Abs. 14 (90).
- VI, 2     **631.416.871.1 : 631.415.3**—Wain, R. L.; Silk, B. J.; Wills, B. C. The fate of manganese sulphate in alkaline soils. *J. Agric. Sci.* 33, 1943 (18-22).
- IV, 1     **631.416.871.1 : 631.432.2**—DeLong, W. A.; Sutherland, A. J.; Salisbury, H. F. Seasonal changes in easily-soluble manganese in Appalachian podsol soil. *Sci. Agric.* 21, 1940 (89-91).
- VII, 2     **631.416.872**—Smolík, L. Further investigations on iron concretions in Moravian soils. *Sborn. Čsl. Akad. Zemřd.* 15, 1940 (408-417). C.A. 37 (6387).
- IV, 3     **631.416.872 : 631.432.3** Winters, E. The migration of iron and manganese in colloidal systems. *Ill. Agric. Expt. Sta. Bull.* 472, 1940 (102-143).
- 631.416.873 : 619**—Stewart, J.; Mitchell, R. L.; Stewart, A.B. Pining in sheep: its control by administration of cobalt and by use of cobalt-rich fertilizers. *Emp. J. Expt. Agric.* 9, 1941 (145-152).
- 631.416.873 : 619**—Martin, C. J. Diseases of stock in Australia caused by deficiency of cobalt and of both cobalt and copper. *Proc. Nutr. Soc.* 1, 1944 (195-200).
- VI, 3     **631.416.877**—Bertrand, D. Presence of molybdenum in agricultural soils and in sea water. *C. R.* 211, 1940 (406-408). C.A. 36 (206).
- VII, 3     **631.416.877 : 546.73**—Watson, J. The effect of dressings of cobalt and limestone on the molybdenum content of some South Island pastures. *N.Z. J. Sci. Tech.* 25A, 1943 (162-164).
- VI, 2     **631.416.877 : 619**—Lewis, A. H.; Watson, S. J. Teart pastures. *J. Min. Agric.* 49, 1942 (82-84).
- VI, 2     **631.416.877 : 619**—Ferguson, W. S.; Lewis, A. H.; Watson, S. J. The teart pastures of Somerset. I. The cause and cure of teartness. II. Relation between soil and teartness. III. Reducing the teartness of pasture herbage. *J. Agric. Sci.* 33, 1943 (44-51, 52-57, 58-63).
- 631.416.877 : 619**—Wilson, D. C.; Murray, M. M.; Lewis, A. H.; Bromehead, C. E. N., et al. Chronic endemic fluorosis. Molybdenum as the cause of teart disease. The geological aspects of fluorosis and molybdenosis. *Abstr. Proc. Geol. Soc. London* No. 1392, 1943 (29-41).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.416.879—Baranov, V. I.; Tseitlin, S. G.** Radioactive elements in several soils of U.S.S.R. *C.R. Acad. Sci. (U.S.S.R.)* 30, 1941 (328-331). C.A. 35 (8183). VI, 3
- 631.416.881.1—Bertrand, D.** Distribution of vanadium in soils. *Bull. Soc. Chim. Fr.* 9, 1942 (133-135). C.A. 37 (5539). VII, 1
- 631.416.881.1—Pelíšek, J.** The occurrence of the micro-element tin in West Moravian soils. *Sborn. Čsl. Akad. Zeměd.* 17, 1942 (46-49). C.A. 37 (5815). VII, 1
- 631.416.882.1—Kaminskaia, Sh. E.** Titanium in the principal zonal soils of the European part of the U.S.S.R. *C.R. Acad. Sci. (U.S.S.R.)* 33, 1941 (50-53). [E.] VI, 2

## 631.417 SOIL ORGANIC MATTER

- 631.417—Waksman, S. A.** Liebig—the humus theory and the role of humus in plant nutrition. *Amer. Assoc. Adv. Sci. Pub.* 16, (56-63).
- 631.417—New Jersey Agricultural Experiment Station.** Soil organic matter, its nature and importance. *N.J. Agric. Expt. Sta. Circ.* 422, 1942, pp. 16.
- 631.417—Norman, A. G.** Soil organic matter. I. Problems in the chemistry of soil organic matter. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (7-15). Biol. Abs. 17 (2182). VII, 1
- 631.417—Norman, A. G.** Organic matter in Iowa soils. *Iowa Agric. Expt. Sta. Bull.* 157, 1943 (826-848). Biol. Abs. 18 (790).
- 631.417—Waksman, S. A.** The microbiologist looks at soil organic matter. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (16-21). Biol. Abs. 17 (2150). C.A. 37 (5535).
- 631.417 : 542.943—Drachev, S. M.; Mitlagina, O. V.** Biochemical oxidation of the organic substance of soil suspensions. *Pedology* No. 11, 1939 (17-34). [R.e.] IV, 2
- 631.417 : 542.943—Niklas, H.; Genninger, C.** Oxidative solutions of humic acids and related substances. *Kolloid-Ztschr.* 93, 1940 (225-233). C.A. 35 (3020). [G.] IV, 5
- 631.417 : 542.943—Norman, A. G.; Peevy, W. J.** The oxidation of soil organic matter with hypiodite. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (183-188). [Iowa Agric. Expt. Sta.] IV, 1
- 631.417 : 542.943—Zaitsev, B. D.** The use of hydrogen peroxide in the study of the migration of mineral elements and the oxidation of soil organic matter. *Pedology* No. 9, 1941 (26-32). [R.] VI, 1
- 631.417 : 542.943—Norman, A. G.** The chemistry of soil organic matter: II. Hypiodite oxidation of the organic matter in some soil profiles. *Soil Sci.* 56, 1943 (223-233). VII, 1
- 631.417 : 542.943—Raychaudhuri, S. P.; Bhuiyan, A. B.** Kinetics of oxidation of soil organic matter: I. Relative orders of oxidation with some chemical reagents. *J. Indian Chem. Soc.* 20, 1943 (76-79). B.C.A.B. III, 1943 (229). VII, 1
- 631.417 : 551.577—Fowler, R. H.; Wheetting, L. C.** Nature of organic matter in western Washington prairie soils as influenced by differences in rainfall. *J. Amer. Soc. Agron.* 33, 1941 (13-23). IV, 3
- 631.417 : 631.414.3—Scheffer, F.; Schachtschabel, P.** Determination of the absorption capacity of soil organic matter. *Bodenk. PflErnähr.* 22/23, 1940 (643- ). *Kolloid-Ztschr.* 97 (116). [G.] V, 2



# BIBLIOGRAPHY OF SOIL SCIENCE

- 631.417 : 631.414.3—Volk, G. M.** Physical action of organic matter in fixing plant foods in the soil. *Proc. Soil Sci. Soc. Florida* 2, 1940 (129-130). C.A. 36 (2661).
- VII, 3 **631.417 : 631.414.3—Schachtschabel, P.** The sorption of organic substances. *Forsch.Dienst. Sonderh.* 17, 1941 (41-45). [G.]
- VI, 1 **631.417 : 631.414.3—Ensminger, L. E.** Factors affecting the interaction between organic matter and montmorillonite. *Soil Sci.* 54, 1942 (191-197).
- IV, 2 **631.417 : 631.445.2—Salisbury, H. F.; DeLong, W. A.** A comparison of the organic matter of uncultivated and cultivated Appalachian upland podsol soils. *Sci. Agric.* 21, 1940 (121-132).
- VI, 2 **631.417 : 631.445.2—Gallagher, P. H.** The mobile colloidal humus of podsol soils and its relationship to the process of podsolisation. *Proc. Roy. Irish Acad.* 48B, 1942 (213-229).
- VII, 3 **631.417 : 631.445.7—Sreenivasan, A.** Conservation of humus in tropical soils. *Nature* 152, 1943 (572-573). *Biol. Abs.* 18 (1007).
- VII, 2 **631.417 : 631.58—Dubov's'ka, N. V.** Changes in the quantities of humus and nitrogen in the soil after many years' cultivation. *Zap. Kharkov. S.-Kh. Inst.* 2, No. 1-2, 1939 (417-447). C.A. 37 (2859).
- 631.417 : 631.58—Niermann, W.** Studies on the humus status of "Esch" soils. *Bodenk. Pflernähr.* 21-22, 1940 (502-530). *Forsch.-Dienst.* 11 (53). [G.]
- 631.417 : 631.58—Stauffer, R. S.; Muckenhirn, R. J.; Odell, R. T.** Organic carbon, pH and aggregation of the soil of the Morrow plats as affected by type of cropping and fertilizer addition. *J. Amer. Soc. Agron.* 32, 1940 (819-832). C.A. 35 (1164).
- IV, 4 **631.417 : 631.58—Coates, W. H.** The influence of a three-year rotation and fertilizer treatments on the organic carbon of soils. *Amer. Potato J.* 18, 1941 (19-26). C.A. 35 (1920).
- V, 2 **631.417 : 631.58—Havis, L.** Relation between soil organic matter and available moisture under different orchard cultural systems. *Proc. Amer. Soc. Hort. Sci.* (1940) 38, 1941 (32-36). *Biol. Abs.* 15 (2078).
- 631.417 : 631.58—Jacks, G. V.** Humus and the farmer. *J. Roy. Soc. Arts* 89, 1941 (229-244).
- 631.417 : 631.58—Prince, F. S.** Soil organic matter. *Amer. Fert.* 94, No. 9, 1941 (5-8, 24, 26).
- VII, 3 **631.417 : 631.58—Coates, W. H.** The organic carbon level of New Hampshire soils under virgin, general farm, and experimental conditions. *N. H. Agric. Expt. Sta. Sci. Contr.* 83, 1942, pp. 8. E.S.R. 90 (305).
- VII, 2 **631.417 : 631.58—Havis, L.** Aggregation of an orchard and a vegetable soil under different cultural treatments. *Ohio Agric. Expt. Sta. Bull.* 640, 1943, pp. 28. E.S.R. 89 (519).
- IV, 3 **631.417 : 631.586—Bracken, A. F.; Greaves, J. E.** Losses of nitrogen and organic matter from dry-farm soils. *Soil Sci.* 51, 1941 (1-15).
- VII, 3 **631.417 : 631.586—Myers, H. E.; Hallsted, A. L.; Kuska, J. B., et al.** Nitrogen and carbon changes in soils under low rainfall as influenced by cropping systems and soil treatment. *Kans. Agric. Expt. Sta. Tech. Bull.* 58, 1943, pp. 52. E.S.R. 90 (162).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.417 : 631.589—Donahue, R. L.** Relation between the carbon content of soils under burning and nonburning. *Proc. Assoc. S. Agric. Workers* 43, 1942 (71). For. Abs. 5 (88). VII, 1
- 631.417 : 631.81—Schmalzfuss, K.** Mineral manuring and carbon economy of the soil. *Bodenk. PflErnähr.* 17, 1940 (28-32). C.A. 35 (256). Mezög. Kutat. 13 (243). [G.] IV, 3
- 631.417 : 631.81—Elson, J.; Azar, E.** Total and alkali-soluble organic matter in the whole soil and in soil aggregates at 6- and 18-month periods after liming. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (56-57). Biol. Abs. 17 (2411). VII, 2
- 631.417 : 631.81—Elson, J.; Azar, E.** Distribution of total and alkali-soluble organic matter between the whole soil aggregates of Dunmore silt loam : I. Influence of fertility treatments 6 and 18 months after liming. *Soil Sci.* 55, 1943 (177-183). VI, 3
- 631.417 : 631.811—Albrecht, W. A.** Soil organic matter and ion availability for plants. *Soil Sci.* 51, 1941 (487-494). IV, 3
- 631.417 : 631.874—McKaig, N., Jr.; Carns, W. A.; Bowen, A. B.** Soil organic matter and nitrogen as influenced by green manure crop management on Norfolk coarse sand. *J. Amer. Soc. Agron.* 32, 1940 (842-852). C.A. 35 (1167). Biol. Abs. 15 (277). IV, 3
- 631.417.2—Aleshin, S. N.; Bobritskala, M. A.** A study of the colloidal properties of soil humus. *Khim. Sotsial. Zemled. No.* 10, 1940 (39-41). [R.] IV, 6
- 631.417.2—Esh, G. C.; Guha-Sircar, S. S.** Investigation on soil and peat humic acids. I. Isolation and purification of the acids. *J. Indian Chem. Soc.* 17, 1940 (326-331). C.A. 35 (1561). IV, 2
- 631.417.2—Esh, G. C.; Guha-Sircar, S. S.** Investigations on soil and peat humic acids. II. Oxidation with hydrogen peroxide, hot alkali and chlorine dioxide solution. *J. Indian Chem. Soc.* 17, 1940 (405-411). C.A. 35 (1561). IV, 2
- 631.417.2—Gel'tser, F. Yu.** What is humus? *Pedology No.* 4, 1940 (52-61). [R.g.] IV, 2
- 631.417.2—Hoffman, W.** Humus substances, humic acids and their determination. *Chem.-Ztg.* 64, 1940 (429-432). C.A. 35 (1167). VII, 1
- 631.417.2—Kondrat'ev, E. V.** Hymatomelanic acid. *Zh. Prikl. Khim.* 12, 1940 (1878-1884). Pedology No. 1-2, 1943 (58). IV, 4
- 631.417.2—Natkina, A. I.** Investigation of the composition and properties of the humic acids in a chernozem and in a podzol soil. *Trans. Dokuchaev Inst.* 23, 1940 (9-22). [R.e.] IV, 4
- 631.417.2—Scheffer, F.** Recent results of studies on humus. *Mitt. Landw.* 55, 1940 (517-518). C.A. 36 (7205). VI, 2
- 631.417.2—Siegel, O.** Several years' observations of the breakdown and humification of organic matter in soil. *Bodenk. PflErnähr.* 21/22, 1940 (455-471). [G.] IV, 6
- 631.417.2—Tiurin, I. V.** The nature of the fulvic acids of soil humus. *Trans. Dokuchaev Inst.* 23, 1940 (23-40). [R.e.] IV, 5
- 631.417.2—Tiurin, I. V.; Gutkina, E. L.** Contribution to the study of the nature of the humins of chernozems. *Trans. Dokuchaev Inst.* 23, 1940 (41-57). [R.e.] IV, 5
- 631.417.2—Frömel, W.** Fulvic acids. *Bodenk. PflErnähr.* 25, 1941 (345-358). [G.] IV, 5
- 631.417.2—Meyer, L.** Characterization of gray and brown humic acids. *ForschDienst. Sonderh.* 17, 1941 (36-37). [G.] IV, 5

# BIBLIOGRAPHY OF SOIL SCIENCE

- VII, 2     **631.417.2—Rippel, A.** Metal catalysis and the production of humus-like substances. *ForschDienst. Sonderh.* 17, 1941 (54-58). C.A. 37 (607f).
- VII, 3     **631.417.2—Scheffer, F.** Definition and determination of the humus fractions. *ForschDienst. Sonderh.* 17, 1941 (14-15). [G.]
- VII, 4     **631.417.2—Siegel, O.** The importance to agricultural chemistry of the results of current methods of investigating humus. *ForschDienst. Sonderh.* 17, 1941 (32-35). [G.]
- VII, 4     **631.417.2—Springer, U.** Degree of decomposition—its determination and its importance. *ForschDienst. Sonderh.* 17, 1941 (18-21). [G.]
- VI, 2     **631.417.2—Enders, C.** The chemistry of humic-acid formation under physiological conditions. *Biochem. Ztschr.* 312, 1942 (339-348). [G.]
- VII, 2     **631.417.2—Enders, C.; Sigurdsson, S.** The chemistry of humic-acid formation under physiological conditions. II. The presence of methylglyoxal in soil. *Biochem. Ztschr.* 313, 1942 (174-181). C.A. 37 (5180).
- V, 5     **631.417.2—Frömel, W.** Fulvic acids. Second communication. *Bodenk. Pflernähr.* 27, 1942 (247-255). [G.]
- VI, 2     **631.417.2—Sedletsky, I. D.; Shmakova, G. V.** Thermal characteristics of humic acids. *C. R. Acad. Sci. (U.S.S.R.)* 35, 1942 (255-257). [E.]
- 631.417.2—Springer, U.** On O. Siegel's paper "Several years' observations on the breakdown and humification of organic matter in soil." *Bodenk. Pflernähr.* 26, 1942 (292-298). [G.]
- 631.417.2—Enders, C.** Chemistry of humic-acid formation under physiological conditions. III. The effect of different factors on binding velocity, properties and composition of humic acid formed from methylglyoxal and glycine. *Biochem. Ztschr.* 313, 1943 (352-371). C.A. 37 (5813).
- 631.417.2—Enders, C.** Origin of humus in nature. *Die Chemie* 56, 1943 (281-285). C.A. 38 (1311).
- VII, 2     **631.417.2—Kononova, M. M.** The nature and properties of brown humic substances formed during humification of plant residues (lucerne roots). *Pedology* No. 7, 1943 (18-23). [R.e.]
- VII, 3     **631.417.2—Kononova, M. M.** The use of the microscopic method in the study of the problem of the origin of humic substances. *Pedology* No. 6, 1943 (27-41). C.A. 38 (607). [R.e.]
- VII, 3     **631.417.2—Springer, U.** The fractionation of the true humus substances. *Bodenk. Pflernähr.* 32, 1943 (129-146). [G.]
- VII, 3     **631.417.2—Süchting, H.** The processes of formation and decomposition of humus in forest litter, A-humus and related materials actually or supposedly capable of humification. *Bodenk. Pflernähr.* 32, 1943 (243-295). [G.]
- VI, 2     **631.417.2 : 537.531—Sedletsky, I. D.** X-ray investigation of humus substances. *Priroda* 26, No. 3, 1938 (15-18). C.A. 36 (3894).
- VII, 2     **631.417.2 : 537.531—Gemmerling, G. V.; Zyrin, N. G.** The X-ray analysis of humic acid. *Shorn. Pam. W. R. Williams*, 1942 (149-153). [R.]
- VII, 2     **631.417.2 : 537.531—Sedletsky, I. D.** New data on the crystalline structure of humic acid. *Shorn. Pam. W. R. Williams*, 1942 (141-148). [R.]

# FERTILIZERS AND GENERAL AGRONOMY

- 631.417.2 : 541.134.5—Mattson, S.** The oxidation-reduction condition in vegetation, litter and humus : I. Reduction capacity, oximetric titration and liming toxicity. *LantbrHögsk. Ann.* 11, 1943 (135-144). [E.] VII, 1
- 631.417.2 : 547.458.84—Junker, E.** A study of the colloid-chemical properties of humus. *Kolloid-Ztschr.* 95, 1941 (213-250). [G.]
- 631.417.2 : 547.458.84—Norman, A. G.; Moody, J. E.** The application of delignifying procedures to soil organic matter. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (171-176). IV, 6
- 631.417.2 : 547.458.84—Scheffer, F.** Researches on the properties of lignin and of lignin-like substances, and particularly of technical lignin, and their importance as humus-forming materials. *Bodenk. PflErnähr.* 27, 1942 (23-61). [G.] V, 6
- 631.417.2 : 547.458.84—Bennett, E.** Some acidic properties of alkali lignin. *Soil Sci.* 55, 1943 (427-431). VI, 4
- 631.417.2 : 547.458.84—Ganz, E.** Preparation of de-ashed humic substances free from nitrogen and sulphur. *C.R.* 216, 1943 (122-124). C.A. 38 (2157). VII, 4
- 631.417.2 : 551.577—Rigotard, M.** Humus and rainfall under Algerian conditions. *Météorologie* 1939 (113-123). Bib. Met. Lit. 4 (475). [F.]
- 631.417.2 : 631.4 : 551.8—Giesecke, F.; Michael, G.** Investigations on humus from manure supposed to be a thousand years old. *Bodenk. PflErnähr.* 18, 1940 (267-275). C.A. 35 (567). [G.]
- 631.417.2 : 631.413—Mattson, S.; Koutler-Andersson, E.** The acid-base condition in vegetation, litter and humus : V. Products of partial oxidation and ammonia fixation. *LantbrHögsk. Ann.* 10, 1942 (284-332). [E.] VI, 3
- 631.417.2 : 631.413—Mattson, S.; Koutler-Andersson, E.** The acid-base condition in vegetation, litter and humus : VII. The acid-base condition during growth of wheat, barley and red clover. *LantbrHögsk. Ann.* 11, 1943 (207-217). [E.] VII, 1
- 631.417.2 : 631.414.2—Vladychensky, S. A.** Loosely bound humic substances of soil colloids as a factor of agronomically valuable soil structure. *Pedology* No. 11, 1939 (45-54). [R.] IV, 2
- 631.417.2 : 631.414.2—Lein, Z. Ya.** The forms of combination of humus with the mineral part of the soil. *Pedology* No. 10, 1940 (41-57). [R.g.] IV, 4
- 631.417.2 : 631.414.2—Tiulin, A. F.** Origin, structure and properties of organo-mineral soil colloids. *Bodenk. PflErnähr.* 21/22, 1940 (544-567). *ForschDienst.* 11 (75). [G.] IV, 6
- 631.417.2 : 631.414.2—Vladychensky, S. A.** Colloid-chemical properties of soil humus. Binding capacity of humic acids. *Kolloid. Zh.* 6, 1940 (683-694). *Pedology* No. 1-2, 1943 (57). VII, 1
- 631.417.2 : 631.414.2—Meyer, L.** Clay-humus complexes as carriers of soil fertility and as means of soil improvement. *ForschDienst.* 11, 1941 (344-355). [G.] V, 1
- 631.417.2 : 631.414.2—Meyer, L.** Means of ameliorating soil by increasing its humus content. *ForschDienst. Sonderh.* 17, 1941 (72-75). [G.] VII, 4
- 631.417.2 : 631.414.2—Meyer, L.** The genesis and formation of clay-humus complexes. *ForschDienst. Sonderh.* 17, 1941 (38-41). [G.] VII, 3

## BIBLIOGRAPHY OF SOIL SCIENCE

- VI, 1    **631.417.2 : 631.414.2**—Sedletsy, I. D.; Tatarinova, L. Electronographic studies of soil colloids. *Pedology* No. 9, 1941 (33-43). [R.]
- VII, 4    **631.417.2 : 631.414.2**—Palaweew, T. Chemical-physical and physiological investigations on organic, inorganic and organo-mineral colloids as regards their influence on soil and plants. *Kühn-Archiv* 56, 1942 (173-214). C.A. 38 (4079).
- VI, 2    **631.417.2 : 631.414.2**—Vinokurov, M. A. The content and composition of organo-mineral gels. *Pedology* No. 3-4, 1942 (73-88). [R.e.]
- VII, 3    **631.417.2 : 631.414.2**—Jung, E. The nature of the binding forces between clay and humus. *Bodenk. PflErnähr.* 32, 1943 (325-336). [G.]
- VII, 4    **631.417.2 : 631.414.2 : 631.416.4**—Köster, P. Influencing potash utilization by influencing the soil absorbing complex as a method of soil amelioration. *Kühn-Archiv* 56, 1942 (81-124). C.A. 38 (3769).
- IV, 1    **631.417.2 : 631.414.2 : 631.452** Shchukina, A. I. Organic colloids in soils of the Kurbyshev region in relation to their fertility. *Pedology* No. 9, 1939 (92-104). [R.e.]
- VII, 3    **631.417.2 : 631.414.2 : 631.452** Atkinson, H. J.; Turner, R. C.; Leahey, A. Soil colloids: III. Relationship to soil fertility. *Soil Sci.* 57, 1944 (243-246).
- V, 3    **631.417.2 : 631.414.3.03**—Lein, Z. Ya. The exchange capacity of soil humus. *Probl. Sovet. Pochvoved.* 8, 1939 (49-68). *Pedology* No. 5, 1941 (120).
- IV, 5    **631.417.2 : 631.414.3.03**—Lein, Z. Ya. The exchange capacity of various humic substances and their complexes. *Trans. Dokuchaev Inst.* 23, 1940 (59-85). [R.e.]
- IV, 4    **631.417.2 : 631.414.3.03**—Tedrow, J. C. F.; Gillam, W. S. The base-exchange capacity of the organic and inorganic fractions of several podzolic soil profiles. *Soil Sci.* 51, 1941 (223-233).
- V, 3    **631.417.2 : 631.414.324**—Bernikov, V. V. Effect of exchange cations (Ca, Na, H) on the oxidation of humus with hydrogen peroxide. *Trudy Omsk. S.-Kh. Inst.* 4, 1939 (151-159). *Pedology* No. 2, 1941 (95).
- V, 1    **631.417.2 : 631.414.324**—Mileff, D. P. The influence of the cations of the absorption complex on some properties of humus. *Rev. Inst. Rech. Agron. Bulg.* 10, 1940 (3-11). *Mezőg. Kutat.* 14 (70).
- VII, 4    **631.417.2 : 631.414.324**—Scheffer, F.; Spidel, B. The influence of the cation coating of humus bodies on the hygroscopicity and stability number according to A. Hock. *ForschDienst. Sonderh.* 15, 1941 (124-133). C.A. 38 (2434).
- VII, 3    **631.417.2 : 631.414.324**—Mileff, D. P. Chemical investigations of some peculiarities of soil humus. *Bodenk. PflErnähr.* 32, 1943 (358-364). [G.]
- VII, 3    **631.417.2 : 631.461**—Enders, C. Chemistry of humic-acid formation under physiological conditions. IV. Role of micro-organisms in the humification processes. *Biochem. Ztschr.* 315, 1943 (259-292). C.A. 38 (1061).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.417.2 : 631.466.2—Ruschmann, G. Humus research from the microbiologist's point of view. *ForschDienst. Sonderh.* 17, 1941 (49-51). [G.] VII, 4
- 631.417.2 : 631.483—Graham, E. R. Colloidal organic acids as factors in the weathering of anorthite. *Soil Sci.* 52, 1941 (291-295). V, 1
- 631.417.2 : 631.821.1—Gliesecke, F.; Michael, G. An investigation of the possibility of increasing the amount of permanent or stable humus in light soils. *Bodenk. PflErnähr.* 27, 1942 (62-78). [G.] V, 6
- 631.417.2 : 631.86—Themnitz, R. The effect of organic manures upon the stability of humus and the buffer capacity of soils. *Bodenk. PflErnähr.* 27, 1942 (78-99). [G.] V, 6
- 631.417.2 : 633.31—Koperzhinsky, V. V. The effect of lucerne on the mobility of humus and nitrogen in the soil. *Dokl. Akad. S.-Kh. Nauk* No. 5, 1941 (42-45). [R.] V, 1
- 631.417.2.061.6—Plekenbrock, F. Light absorption and particle size in humus colloids. *Kolloid-Ztschr.* 103, 1943 (146-150). [G.] VII, 1
- 631.417.4—Kaserer, H. A contribution to the history of the carbon/nitrogen ratio. *ForschDienst. Sonderh.* 17, 1941 (45-47). [G.] VII, 4
- 631.417.4—Scheffer, F. The significance of the C/N ratio and the  $C_h/N_h$  ratio for evaluating organic substances. *ForschDienst. Sonderh.* 17, 1941 (48-49). [G.] VII, 3
- 631.417.4 : 631.415.1—Dhar, N. R.; Pant, N. N. Influence of temperature and pH on the C/N ratio of soils. *Nature* 149, 1942 (83-84). V, 2
- 631.417.4 : 631.452—Basu, J. K.; Vanikar, J. V. Soils of the Deccan canals. II. Studies in availability of nitrogen in soil with application of farmyard manure under different conditions of moisture and carbon/nitrogen ratios. *Indian J. Agric. Sci.* 12, 1942 (121-136). V, 5
- 631.417.4 : 631.48—Godlin, M. M.; Antonova, T. N. Ratio of C:N in soils of the Ukrainian S.S.R. *Trudi Inst. Sotsial. Zemlerob.* 4, 1939 (157-177). *Pedology* No. 5, 1940 (112). IV, 2
- 631.417.4 : 634.975—Hoon, R. C.; Dhawan, C. L. A study of the carbon : nitrogen relationships of soils from the typical coniferous forests of the Himalayas. *J. Ecol.* 29, 1941 (193-203). V, 1
- 631.417.745.4 : 631.445.4—Aleksandrova, L. N. Properties of carbohydrates in the organic matter of chernozem. *Uchen. Zap. Leningr. Gosud. Univ.* 34, Ser. Geol.-Pochv. Nauk 7, 1939 (318-344). *Pedology* No. 12, 1940 (85). IV, 5
- 631.417.747.45—Norman, A. G.; Bartholomew, W. V. The chemistry of soil organic matter : I. Distribution of uronic carbon in some soil profiles. *Soil Sci.* 56, 1943 (143-150). VI, 4
- 631.417.791—Egorov, M. A. Wax-like and resinous substances in the chernozem of the Kharkov Agricultural Experiment Station, their rôle and importance. *Zap. Kharkov. S.-Kh. Inst.* 1, No. 4, 1939 (141-171). *Pedology* No. 5, 1940 (113). IV, 2
- 631.417.792—Turflitt, G. E. Microbiological degradation of steroids. I. Sterol content of soils. *Biochem. J.* 37, 1943 (115-117). B.C.A.B. III, 1943 (166). VI, 4

## BIBLIOGRAPHY OF SOIL SCIENCE

### 631.418 SOIL SOLUTION

- IV, 2     **631.418**—Komarova, N. A. The study of soil solutions. *Pedology* No. 10, 1939 (53-64). [R.]
- 631.418**—Anderson, M. S.; Keyes, M. G.; Cromer, G. W. Soluble material of soils in relation to their classification and general fertility. *U.S.D.A. Tech. Bull.* 813, 1942, pp. 79.
- VI, 4     **631.418 : 532.712**—Magistad, O. C.; Reitemeler, R. F. Soil solution concentrations at the wilting point and their correlation with plant growth. *Soil Sci.* 55, 1943 (351-360).
- V, 1     **631.418 : 631.67**—Eaton, F. M. Water uptake and root growth as influenced by inequalities in the concentration of the substrate. *Plant Physiol.* 16, 1941 (545-564).
- IV, 5     **631.418.005**—Richards, L. A. A pressure-membrane extraction apparatus for soil solution. *Soil Sci.* 51, 1941 (377-386).
- VII, 3    **631.418.005**—Reitemeler, R. F.; Richards, L. A. Reliability of the pressure-membrane method for extraction of soil solution. *Soil Sci.* 57, 1944 (119-135).

### 631.42 EXPERIMENTAL TECHNIQUE

- IV, 3     **631.42**—Boguslawski, E. von. Technique of watering experimental pots. *Bodenk. PflErnähr.* 17, 1940 (236-252). Biol. Abs. 15 (287). [G.]
- 631.42**—Collins, E. R.; Hodgen, W. R. Field variations as a factor in sampling for rapid soil analyses. *Proc. Assoc. S. Agric. Workers* 41, 1940 (77-78). C.A. 34 (8129).
- 631.42**—Volk, G. M.; Peech, M. Factors affecting the soil-sampling procedure. *Proc. Soil Sci. Soc. Florida* 2, 1940 (12-20). C.A. 36 (2360).
- 631.42**—Forstwissenschaftliches Centralblatt. Draft of directions for taking soil samples in the forest. *Forstwiss. Zbl.* 63, 1941 (161-163). For. Abs. 3 (282). [G.]
- IV, 5     **631.42**—Grandfield, C. O. A greenhouse method of maintaining soil moisture below field capacity. *J. Amer. Soc. Agron.* 33, 1941 (371-373).
- V, 3     **631.42**—Vermaat, J. G. Uniformity of soil sampling in connexion with practical agricultural enquiries. *Arch. Theecult.* 15, 1941 (263-285). [Du.]
- 631.42**—Vermaat, J. G. A scheme for the uniform sampling of soil for purposes of agricultural research. *Bergcultures* 15, 1941 (1714-1716). [Du.]
- 631.42**—Gillern, C. von. The Mitscherlich-Gillern plant pot. *Bodenk. PflErnähr.* 28, 1942 (190-192). [G.]
- 631.42**—Lunt, H. A. A pot culture experiment with undisturbed forest soil. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (403).
- V, 5     **631.42**—Richards, L. A.; Loomis, W. E. Limitations of auto-irrigators for controlling soil moisture under growing plants. *Plant Physiol.* 17, 1942 (223-235).
- 631.42**—Tamés Alarcón, C. Methods for the study of soils under cultivation. *Bol. Inst. Nac. Invest. Agron.* No. 7, 1942 (57-175). [Sp.]

# FERTILIZERS AND GENERAL AGRONOMY

- 631.42—Herrmann, R.** An identification code for use in soil investigations. *Bodenk. PflErnähr.* 30, 1943 (329-342). [G.]
- 631.42—Rhodesia Agricultural Journal.** Instructions for taking soil samples. *Rhod. Agric. J.* 20, 1943 (283-284).
- 631.42—Riehm, H.** Studies on the most suitable method of sampling for chemical soil control. *Bodenk. PflErnähr.* 29, 1943 (275-291). [G.] VI, 4
- 631.42—Riehm, H.** An investigation of the reproducibility of soil samples. *Bodenk. PflErnähr.* 33, 1943 (235-249). [G.] VII, 3
- 631.42 : 535.82—Johnston, J. R.** Micromorphology of a Marshall silty clay loam, a Webster clay, and a Nacogdoches sandy loam profile. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (360-363).
- 631.42 : 535.82—Proissl, A.** Microscopic investigations on soil formation in the forest regions of the lower Danube. *Bodenk. PflErnähr.* 21/22, 1940 (112-140). *ForschDienst.* 11 (52). [G.]
- 631.42 : 535.82—Redlich, G. C.** Micromorphology of soil. *Landbouwk. Tijdschr.* 52, 1940 (869-881). *Biol. Abs.* 15 (1798). V, 1
- 631.42 : 535.82—Johnston, J. R.** A micromorphological approach to the study of soils. *Iowa St. Coll. J. Sci.* 16, 1941 (80-81). V, 1
- 631.42 : 535.82—Swanson, C. L. W.** A microscopic method for measuring soil pore space and for characterizing soil structure. *Iowa St. Coll. J. Sci.* 16, 1941 (137-139). V, 1
- 631.42 : 535.82—Johnston, J. R.; Peterson, J. B.** Microscopic study of soils from five great soil groups. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (360-367).
- 631.42 : 535.82—Swanson, C. L. W.** A microscopic method of studying soil structure. *Iowa St. Coll. J. Sci.* 16, 1942 (379-389). *Biol. Abs.* 16 (1632).
- 631.42 : 535.82—Rodríguez, C.** Note on the technique of examination of the micro-structure of soil. *An. Inst. Edafol.* 2, 1943 (144-150). [Sp.]
- 631.42 : 535.82 : 631.417.2—Kubiena, W.** The microscopic investigations of humus. *ForschDienst. Sonderh.* 17, 1941 (62-70). C.A. 37 (6071). [G.]
- 631.42 : 549—Jeffries, C. D.** A double centrifuge tube for the separation of soil minerals by means of heavy liquids. *Soil Sci.* 52, 1941 (167-171).
- 631.42 : 549—Leonhardt, J.; Gerstenfeldt, H.** The staining method as amplification of microscopic and X-ray methods in sediment and soil petrography studies. *Naturwissenschaften* 31, 1943 (344-345). C.A. 38 (1709). VII, 4
- 631.42 : 549 : 537.533—Jacob, A.; Loofmann, H.** Experiments with the electron microscope on homogeneous soil minerals of less than 2 $\mu$  particle size. *Bodenk. PflErnähr.* 21/22, 1940 (666-672). C.A. 37 (6388).
- 631.42 : 581.144.2—Partridge, N. L.** A container for growing plants for root studies. *J. Amer. Soc. Agron.* 32, 1940 (907-908). IV, 6
- 631.42 : 581.144.2—Gómez, L. A.** A method for the study of the root system of plants. *Rev. Agric. P.R.* 33, 1941 (609-610). E.S.R. 87 (205).
- 631.42 : 631.414.2—Albrecht, W. A.** Plants and the exchangeable calcium of the soil. *Amer. J. Bot.* 28, 1940 (394-402). *Biol. Abs.* 15 (1814). V, 1



# BIBLIOGRAPHY OF SOIL SCIENCE

- 631.42 : 631.414.2**—Hampton, H. E. The preparation and use of colloidal clay-sand culture in plant research. *Trans. Tex. Acad. Sci.* (1942) 26, 1943 (75-79). C.A. 38 (198).
- VII, 2 **631.42 : 631.416**—Pollard, A. G.; Smith, C. W. R. Soil studies at Wisley. I. Pot culture. *J. Roy. Hort. Soc.* 68, 1943 (201-204). B.C.A.B. III, 1943 (287).
- VII, 1 **631.42 : 631.416**—Pollard, A. G.; Smith, C. W. R. Soil studies at Wisley, Part II. Further observations on potted soils. *J. Roy. Hort. Soc.* 68, 1943 (239-242). Hort. Abs. 13 (108).
- VI, 4 **631.42 : 631.416**—Pollard, A. G.; Smith, C. W. R.; Rowe, L. R. Soil studies at Wisley. Part III.—The flower-pot, the soil, and the plant. *J. Roy. Hort. Soc.* 68, 1943 (271-275).
- IV, 1 **631.42 : 631.422**—Garman, W. H.; Merkle, F. G. Use of rapid soil tests in conjunction with pot experiments. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (209-214).
- IV, 6 **631.42 : 631.46**—Conn, H. J.; Conn, J. E. Synthetic soil as a bacteriological culture medium. *Soil Sci.* 52, 1941 (121-136).
- VI, 2 **631.42 : 631.811**—Converse, C. D.; Gammon, N.; Sayre, J. D. The use of ion exchange materials in studies on corn nutrition. *Plant Physiol.* 18, 1943 (114-121).
- VI, 3 **631.42 : 631.811**—Gile, P. L.; Feustel, I. C. Effect of soil and peat admixtures on the growth of plants in quartz sand. *J. Agric. Res.* 66, 1943 (49-65).
- VII, 3 **631.42 : 631.811**—Pepkowitz, L. P.; Shive, J. W. The importance of oxygen in the nutrient substrate for plants—ion absorption. *Soil Sci.* 57, 1944 (143-154).
- VII, 2 **631.42 : 631.811.9**—Ferres, H. M.; Trumble, H. C. Exploratory investigation of soil deficiencies by means of small pot cultures. *J. Aust. Inst. Agric. Sci.* 9, 1943 (179-182).
- V, 5 **631.42 : 633.1**—Down, E. E. Plot technic studies with small grains. *J. Amer. Soc. Agron.* 34, 1942 (472-481).
- IV, 2 **631.42 : 635**—Emel'ianov, I. E. The technique of conducting experiments in frames and glasshouses. *Vest. Orosk. Karlof.* No. 2, 1941 (12-26). Hort. Abs. 14 (27).
- VII, 3 **631.42.005**—Schmid, F. A. F.; Nutman, F. J. A convenient method for the excavation of growing trees in undisturbed soil. *Soil Sci.* 49, 1940 (411-417). B.C.A. 59 (887).
- 631.42.005**—Trénel, M. Apparatus for the rapid sampling of stony soils. *Bodenk. Pflernähr.* 21/22, 1940 (268-269). C.A. 38 (1060). [G.]
- 631.42.005**—Beaumont, A. B. Soil sampling tube with inner liner. *J. Amer. Soc. Agron.* 33, 1941 (84).
- 631.42.005**—Horth, C. J. The use of the soil auger. *Agric. Gaz. N.S.W.* 52, 1941 (286, 292).
- IV, 5 **631.42.005**—Salminen, A. A soil borer that penetrates dry and hard clay soil. *J. Amer. Soc. Agron.* 33, 1941 (478).
- 631.42.005**—Dames, T. R. Soil sampler. *Engng. News-Rec.* 129, 1942 (762). C.A. 37 (1549).
- 631.42.005**—Fahlquist, F. E. Cohesionless soil samples by freezing. *Engng. News-Rec.* 129, 1942 (229-231). C.A. 36 (6723).
- VI, 1 **631.42.005**—Hammond, H. D. New sampler for soft sandy soils. *Engng. News-Rec.* 129, 1942 (308-309). C.A. 36 (6722).

## FERTILIZERS AND GENERAL AGRONOMY

- 631.42.005—Stewart, A. J.** A soil tube for obtaining wet clay cores in an undisturbed structural condition. *Soil Sci.* 55, 1943 (247-251). VI, 3
- 631.42.005—Fife, C. V.** Note on a soil sampler designed for rapid sampling at successive depths. *N.Z. J. Sci. Tech.* 25B, 1944 (229-230). VII, 4

## 631.421 FIELD EXPERIMENTS

- 631.421—Beall, G.** The technique of randomization in field work. *Canad. Ent.* 72, 1940 (45-48). *Biol. Abs.* 14 (1240).
- 631.421—Cornish, E. A.** The estimation of missing values in quasi-factorial designs. *Ann. Eugenics* 10, 1940 (137-143). P.B.A. 10 (259).
- 631.421—Cornish, E. A.** The analysis of covariance in quasi-factorial designs. *Ann. Eugenics* 10, 1940 (269-279).
- 631.421—Emmert, E. M.** Partial elimination of experimental error from data by the use of significance tests. *Proc. Amer. Soc. Hort. Sci.* (1939) 37, 1940 (272-278). P.B.A. 10 (271).
- 631.421—Iyer, P. V. K.** The analysis of simple non-symmetrical experiments. *Indian J. Agric. Sci.* 10, 1940 (688-690).
- 631.421—Iyer, S. S.** A supplementary note on the analysis of  $2^p$  and  $3^q$  designs (with three-factor interactions confounded) in field experiments in agriculture. *Indian J. Agric. Sci.* 10, 1940 (691-692).
- 631.421—LeClerg, E. L.; Henderson, M. T.** Relative efficiency of the two-dimensional quasi-factorial design as compared with a randomized-block arrangement when concerned with yields of Irish potatoes. *Amer. Potato J.* 17, 1940 (279-282). P.B.A. 11 (89). IV, 4
- 631.421—Nair, K. R.** The application of the technique of analysis of covariance to field experiments with several missing mixed-up plots. *Indian J. Stat.* 4, 1940 (581-588). P.B.A. 11 (1). IV, 2
- 631.421—Nair, K. R.** Balanced confounded arrangements for the  $5^2$  type of experiment. *Indian J. Stat.* 5, 1940 (57-70). P.B.A. (252).
- 631.421—Nair, K. R.; Mahalanobis, P. C.** Statistical notes for agricultural workers. No. 25. A simplified method of analysis of quasi-factorial experiments in square lattice with a preliminary note on joint analysis of yield of paddy and straw. *Indian J. Agric. Sci.* 10, 1940 (683-685). IV, 1
- 631.421—Papadakis, J. S.** Comparison of different methods of experimentation in applied botany. *Rev. Argent. Agron.* 7, 1940 (37-363). P.B.A. 11 (262). V, 1
- 631.421—Sant, G. K.** Some features in the analysis of covariance in split-plot designs. *Proc. 27th Indian Sci. Cong. Abs.* Pt. 3, 40 (231). P.B.A. 11 (2). IV, 2
- 631.421—Vagholkar, B. P.; Apte, V. N.; Iyer, S. S.** A study of plot size and shape technique for field experiments on sugarcane. *Indian J. Agric. Sci.* 10, 1940 (388-403). IV, 1
- 631.421—Brandt, A. E.** The relation between the design of experiment and the analysis of variance. *J. Amer. Stat. Assoc.* 1941 (283-292). P.B.A. 12 (165). *Emp. Cott. Grow. Rev.* 19 (2).

# BIBLIOGRAPHY OF SOIL SCIENCE

- 631.421—Cochran, W. G.** Lattice designs for wheat variety trials. *J. Amer. Soc. Agron.* 33, 1941 (351-360).
- 631.421—Cornish, E. A.** The analysis of quasi-factorial designs with incomplete data. 2. Lattice squares. *J. Aust. Inst. Agric. Sci.* 7, 1941 (19-26).
- 631.421—Iyer, P. V. K.** The analysis of incomplete split plot designs. *Science and Culture* 6, 1941 (487). P.B.A. 11 (252).
- V, 1 **631.421—Lander, P. E.; Narain, R.; Singh, A.** Soil uniformity trials in the Punjab. II. *Indian J. Agric. Sci.* 11, 1941 (338-355).
- VII, 2 **631.421—Ma, R.-H.** A note on a field experiment of factorial design. *Nanking J. Clin.* No. 3, 1941 (37-41). [E.]
- 631.421—Marino, A.; Luna, J. T.** Methods of experiments in incomplete blocks (lattice and balanced lattice). Analyses of results in experiments with maize. *Rev. Argent. Agron.* 8, 1941 (281-316). *Biol. Abs.* 16 (1873).
- 631.421—New Guinea Agricultural Gazette.** Manurial experiments for planters. *N. Guinea Agric. Gaz.* 7, 1941 (66-71).
- IV, 4 **631.421—Tharp, W. H.; Wadleigh, C. H.; Barker, H. D.** Some problems in handling and interpreting plant-disease data in complex factorial designs. *Phytopath.* 31, 1941 (26-48). C.A. 35 (2175).
- VI, 4 **631.421—Willcox, O. W.** A critique of field experiments with plant nutrients. *Amer. Fert.* 95, No. 5, 1941 (5-7, 26); No. 6, 1941 (8-11, 24, 26).
- 631.421—Bondorff, K. A.** The size of operational errors in local experiments. *Nord. JordbrForsk.* 24, 1942 (151-152). [Da.]
- 631.421—Davis, J. F.; Cook, R. L.; Baten, W. D.** A method of statistical analysis of a factorial experiment involving influence of fertilizer analyses and placement of fertilizer on stand and yield of canary peas. *J. Amer. Soc. Agron.* 34, 1942 (521-532).
- 631.421—Dorph-Petersen, K.** Calculation of error in experiments with systematic plot arrangements. *Nord. JordbrForsk.* 24, 1942 (140-150). [Da.]
- 631.421—Hartman, J. D.; Stair, E. C.** Field plot technique studies with tomatoes. *Proc. Amer. Soc. Hort. Sci.* 41, 1942 (315-320).
- 631.421—Iyer, P. V. K.** Studies with wheat uniformity trial data. I. Size and shape of experimental plots and the relative efficiency of different lay-outs. II. Balanced versus randomized arrangements. III. Distribution of variances and ratio of variances. *Indian J. Agric. Sci.* 12, 1942 (240-262, 263-273, 274-280).
- V, 3 **631.421—Zuber, M. S.** Relative efficiency of incomplete block designs using corn uniformity trial data. *J. Amer. Soc. Agron.* 34, 1942 (30-47).
- VII, 1 **631.421—Borden, R. J.** Replication: the safeguard for uncontrolled variation. *Hawaii. Plant. Rec.* 47, 1943 (135-153).
- VI, 4 **631.421—Johnson, I. J.; Murphy, H. C.** Lattice and lattice square designs with oat uniformity data and in variety trials. *J. Amer. Soc. Agron.* 35, 1943 (291-305). *Biol. Abs.* 17 (1759).
- 631.421—Torrie, J. H.; Shands, H. L.; Leith, B. D.** Efficiency studies of types of design with small grain yield trials. *J. Amer. Soc. Agron.* 35, 1943 (645-661).

## FERTILIZERS AND GENERAL AGRONOMY

**631.421—Willcox, O. W.** Interpretation of Olsen and Shaw's field tests by the Mitscherlich-Baule theorem and the universal yield diagram. *J. Amer. Soc. Agron.* 35, 1943 (454-459). VI, 4

**631.421—Willcox, O. W.** Further interpretations of field tests by the universal yield diagram. *J. Amer. Soc. Agron.* 36, 1944 (386-392). VII, 4

**631.421 : 631.459—Brandt, A. E.** The design of plot experiments for measurement of run-off and erosion. *Agric. Engng.* 22, 1941 (429-432, 436).

**631.421 : 631.557—Boguslawski, E. von.** A method for statistical examination of the dependence of crop yields upon locality and climatic factors. *ForschDienst.* 13, 1942 (301-320). [G.]

**631.421 : 633.51—Panse, V. G.** Studies in the technique of field experiments. V. Size and shape of blocks and arrangement of plots in cotton trials. *Indian J. Agric. Sci.* 11, 1941 (850-865).

**631.421 : 635.65—Down, E. E.; Thayer, J. W., Jr.** Plot technic studies with navy beans. *J. Amer. Soc. Agron.* 34, 1942 (919-922). VI, 1

### 631.422 QUALITATIVE ANALYSIS

**631.422—Tinsley, J.; Pizer, N. H.** Examination of the Morgan rapid method of soil testing. Part II. Application to non-calcareous soils. *J. Soc. Chem. Indust.* 59, 1940 (265-271). IV, 2

**631.422—Beater, B. E.** Estimation of the availability of phosphoric acid, potash and nitrogen in soils by a new rapid technique. *N. Afric. Sug. Tech.* 1941, pp. 7. V, 1

**631.422—Hance, F. E.** Soil and plant material analyses by rapid chemical methods—III. *Hawaii. Plant. Rec.* 45, 1941 (265-296).

**631.422—Morgan, M. F.** Chemical soil diagnosis by the universal soil testing system. *Conn. Agric. Expt. Sta. Bull.* 450, 1941 (575-628). E.S.R. 87 (26).

**631.422—Morwick, F. F.; Rivaz, C. P.** A soil fertility survey by rapid chemical tests. *Sci. Agric.* 21, 1941 (433-439).

**631.422—Purvis, E. R.; Blume, J. M.** A fixation method for determining the phosphorus and potassium requirements of soils. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (201-204). IV, 6

**631.422—Purvis, E. R.; Blume, J. M.** Truck crop investigations. Rapid soil tests for determining the fertilizer requirements of vegetable crops in eastern Virginia. *Va. Truck Expt. Sta. Bull.* 106, 1941 (1745-1756). IV, 5

**631.422—Vermaat, J. G.** Remarks about the application of the Morgan-Venema method of soil investigation in plantation work. *Bergcultures* 15, 1941 (750-756). [Du.]

**631.422—Melsted, S. W.** A chemical study of quick-test technics for potassium and calcium. *J. Amer. Soc. Agron.* 34, 1942 (533-543). V, 5

**631.422—Walsh, T.** Soil fertility studies. Part II. The assessment of soil fertility. *Eire J. Dept. Agric.* 39, 1942 (277-306).

**631.422—Godbout, G.; Scott, A.** L'indicateur Pilote—a new rapid chemical soil test. *Sci. Agric.* 23, 1943 (461-473). [E.] VI, 4

**631.422—Peech, M.; English, L.** Rapid microchemical soil tests. *Soil Sci.* 57, 1944 (167-195).

# BIBLIOGRAPHY OF SOIL SCIENCE

- IV, 1    **631.422 : 631.414.2—Faust, G. T.** Staining of clay minerals as a rapid means of identification in natural and beneficiated products, with a general discussion on staining technique. *U.S. Bur. Mines Rept. Investig.* 3522, 1940, pp. 21. (Mimeo.)
- IV, 4    **631.422 : 631.414.2—Knight, B. H.** Detection of clay minerals in soil mortars by photo-electric cell. *Nature* 147, 1941 (27-28).
- IV, 3    **631.422 : 631.414.2—Page, J. B.** Unreliability of the benzidine color reaction as a test for montmorillonite. *Soil Sci.* 51, 1941 (133-140).
- 631.422 : 631.416.2—Thun, R.** Soil testing as the basis for the most expedient use of phosphate fertilizer in war. *Phosphorsäure* 8-9, 1940 (251-261). C.A. 36 (3895).
- VII, 1    **631.422 : 631.416.2—Niklas, H.** Very rapid colorimetric methods for the evaluation of the phosphate status of soils. *Bodenk. Pflernähr.* 29, 1942 (310-322). [G.]
- VI, 2    **631.422 : 631.416.4—Olsen, S. R.; Shaw, B. T.** Chemical, Mitscherlich, and Neubauer methods for determining available potassium in relation to crop response to potash fertilization. *J. Amer. Soc. Agron.* 35, 1943 (1-9).
- 631.422 : 631.416.846—Garman, W. H.; Merkle, F. G.** A rapid versus a quantitative method for determining available magnesium in soils. *Soil Sci.* 53, 1942 (15-25).
- IV, 6    **631.422 : 635.98—Stephenson, R. E.; Schuster, C. E.** Laboratory, greenhouse, and field methods of studying fertilizer needs of orchard soils. *Soil Sci.* 52, 1941 (137-153).
- 631.422 : 635.98—Spurway, C. H.** Soil fertility control for greenhouses. *Mich. Agric. Expt. Sta. Spec. Bull.* 325, 1943, pp. 67. E.S.R. 89 (418).
- VII, 3    **631.422.4—Tiurin, I. V.** Some results of studies on the composition of humus in soils of the U.S.S.R. *Probl. Sovet. Pochvoved.* 11, 1940 (173-188). [R.]
- V, 1    **631.422.4—Netto, J. E. de P.** "Loss on ignition" in proximate soil analyses. *Bragantia* 1, 1941 (433-440). [Pt.]

## 631.423 QUANTITATIVE ANALYSIS

- 631.423—Troitsky, V. M.** Directions for destroying organic matter with sulphuric acid and 30% hydrogen peroxide. *Khim. Sotsial. Zemed.* No. 9, 1939 (54-59). C.A. 36 (1868).
- IV, 3    **631.423—Schönfeld, S.; Dörmötör, E.** Determination of the nutrient requirements of soils by laboratory methods. *Mezőg. Kutat.* 13, 1940 (213-230). [H.g.e.]
- VI, 2    **631.423—Hettterschij, C. W. G.** The effect of temperature upon the equilibrium in soil extracts. *Chem. Weekbl.* 38, 1941 (559-561). C.A. 36 (5593).
- V, 2    **631.423—Jeffries, C. D.** A method of preparing soils for petrographic analysis. *Soil Sci.* 52, 1941 (451-454).
- 631.423—Noggle, G. R.; Wynd, F. L.** The determination of selected chemical characteristics of soil which affect the growth and composition of plants. *Plant Physiol.* 16, 1941 (39-60).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.423—Allison, L. E.; Scarsoeth, G. D. A biological reduction method for removing free iron oxides from soils and colloidal clays. *J. Amer. Soc. Agron.* 34, 1942 (616-623). V, 6
- 631.423—Blackie, W. J.; Biggs, A. I. Observation on soil methods. II. *Fiji Agric. J.* 13, 1942 (83-93). C.A. 37 (1546). VII, 3
- 631.423—Somb, G. Soil analyses and their significance for the estimation of fertilizer requirements. *Tidsskr. Norske Landbr.* 49, 1942 (16-27). C.A. 37 (2116).
- 631.423—Nikiforoff, C. C.; Drowsdoff, M. Genesis of a claypan soil: I. *Soil Sci.* 55, 1943 (459-482). VI, 4
- 631.423—Robinson, G. W. Soil analysis. *Chem. Indust.* 1943 (171-174). B.C.A.B. III, 1943 (141).
- 631.423—Reitemeier, R. F.; Fireman, M. Prevention of calcium carbonate precipitation in soil solutions and waters by sodium hexametaphosphate. *Soil Sci.* 58, 1944 (35-41). VII, 4
- 631.423 : 537.531—Shearer, J. X-ray powder analysis and its application to soil colloids. *Aust. J. Sci.* 5, 1942 (43-47). C.A. 37 (3214).
- 631.423 : 541.134.5—Cummings, R. W.; Reed, J. F. Some applications of the polarograph in soil investigations. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (167-170).
- 631.423 : 544.6—Davidson, A. M. M.; Mitchell, R. L. The spectrographic determination of trace elements in soils. II. The variable internal standard method, applied to the determination of chromium in the cathode layer arc. *J. Soc. Chem. Indust.* 59, 1940 (213-216).
- 631.423 : 544.6—Ivanov, D. N. Application of spectroscopic analysis in soil science. *Bull. Acad. Sci. (U.S.S.R.) (Cl. Sci. Math.) Sér. Phys.* 4, 1940 (203-205). C.A. 35 (1557).
- 631.423 : 544.6—Mitchell, R. L. The spectrographic determination of trace elements in soils. I. The cathode layer arc. *J. Soc. Chem. Indust.* 59, 1940 (210-213).
- 631.423 : 544.6—Ells, V. R. The Lundegårdh flame method of spectrographic analysis. *J. Opt. Soc. Amer.* 31, 1941 (534-542). VI, 3
- 631.423 : 544.6—Fox, G. W.; Goodwin, R. A. The quantitative spectroscopic analysis of soils. *Iowa St. Coll. J. Sci.* 15, 1941 (111-125).
- 631.423 : 544.6—Mitchell, R. L. The spectrographic analysis of solutions by a modified Ramage flame emission method. *J. Soc. Chem. Indust.* 60, 1941 (95-98).
- 631.423 : 544.6—Rogers, L. H. Spectrochemical analysis in agricultural research. *J. Opt. Soc. Amer.* 31, 1941 (260-262). C.A. 35 (3749).
- 631.423 : 544.6—Lundegårdh, H. Triple analysis. The theoretical and practical bases of a plant-physiological method for the determination of fertilizer requirements of arable soil. *LantbrHögsk. Ann.* 9, 1941 (127-221). [G.]
- 631.423 : 544.6—McHargue, J. S.; Hodge, E. S. Spectrography in agricultural research. *J. Assoc. Off. Agric. Chem.* 25, 1942 (509-511).
- 631.423 : 544.6—Borovik, S. A. Some new methods for spectrum analysis of mineral raw materials. *C.R. Acad. Sci. (U.S.S.R.)* 41, 1943 (284). [E.] VII, 4

## BIBLIOGRAPHY OF SOIL SCIENCE

- VII, 2    **631.423 : 544.6**—Nelson, R. C.; Hamm, P. C.; Tsaiang, Y. S. Spectrographic analysis of plant ash for several elements simultaneously. *Plant Physiol.* 18, 1943 (699-703).
- 631.423 : 544.6**—Scott, R. O.; Mitchell, R. L. Concentration methods in spectrographic analysis. I. Recovery of cobalt, nickel, molybdenum, copper, and zinc from plant materials and soil extracts by 8-hydroxyquinoline. *J. Soc. Chem. Indust.* 62, 1943 (4-8).
- 631.423 : 544.6 : 631.422**—Schuffelen, A. C. Microchemical methods used in agricultural chemistry. *Chem. Weekbl.* 38, 1941 (604-609). C.A. 36 (5297).
- V, 5     **631.423 : 545.372**—Hock, A. Electrometric titrations in soil science with the help of the antimony electrode. *Bodenk. PflErnähr.* 27, 1942 (370-374). [G.]
- 631.423.005**—Constable, E. W.; Miles, I. E. Soil testing methods and apparatus designed for economy in time and labour. *J. Amer. Soc. Agron.* 33, 1941 (623-631).
- 631.423.3**—Malychin, F. Colorimetric methods for the determination of nutrients in aqueous soil extracts. *Chem. Listy* 35, 1941 (257-264, 285-289). C.A. 37 (2862).
- VII, 4    **631.423.3**—Herrmann, C. Procedures for determination of the soil's content of the nutrients potash (soda), lime and magnesia by means of soil oxidation. *Bodenk. PflErnähr.* 33, 1944 (377-383). [G.]
- VII, 3    **631.423.3 : 631.411.4**—Arnd, T.; Leisen, E. Determination of the total potash and phosphoric-acid contents of moor soils by flame-photometer and colorimetric methods. *Bodenk. PflErnähr.* 30, 1942 (51-62). [G.]
- IV, 4     **631.423.3 : 631.416.1**—Lander, P. E.; Madhok, M. R. On the index of nitrogen level in soils. *Indian J. Agric. Sci.* 10, 1940 (773-775). C.A. 35 (1919).
- V, 4     **631.423.3 : 631.416.1**—Rauterberg, E.; Benischke, H. An investigation of various substances as additions to the digesting acid in the determination of nitrogen in organic materials by the Kjeldahl method. *Bodenk. PflErnähr.* 26, 1941 (97-105). [G.]
- V, 2     **631.423.3 : 631.416.11**—Alten, F.; Haupt, W. The determination of minute amounts of ammonia in presence of organic material. *Bodenk. PflErnähr.* 25, 1941 (140-147). [G.]
- VII, 2    **631.423.3 : 631.416.12**—Malychin, F. The colorimetric determination of nitrite in soil extracts. *Chem. Listy* 35, 1941 (313-319). C.A. 37 (4178).
- V, 1     **631.423.3 : 631.416.13**—Berge, T. O. Determination of nitrate-nitrogen with a photoelectric colorimeter. *Soil Sci.* 52, 1941 (185-191).
- 631.423.3 : 631.416.13**—Malychin, F. The colorimetric determination of nitrate in soil extracts with brucine. *Chem. Listy* 35, 1941 (305-307). C.A. 37 (4182).
- VII, 4    **631.423.3 : 631.416.13**—Rauterberg, E.; Benischke, H. Determination of nitrate as nitroxylenol in crops. *Bodenk. PflErnähr.* 31, 1943 (216-223). C.A. 38 (3072). [G.]
- IV, 4     **631.423.3 : 631.416.2**—Brown, R. J. Plant-available phosphate and phosphate extracted by sodium acetate buffer. *Proc. Amer. Soc. Sug. Beet Tech.* 1940 (305-312). B.C.A.B.III, 1942 (125).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.423.3 : 631.416.2—Clarens, J.; Lacroix, J.** Study of soils. XXIII. Determination of "assimilable" phosphoric acid. *Bull. Soc. Chim. Fr.* 7, 1940 (377-382). C.A. 36 (1425). VI, 3
- 631.423.3 : 631.416.2—Dickman, S. R.; Bray, R. H.** Colorimetric determination of phosphate. *Indust. Engng. Chem. (Anal. Ed.)* 12, 1940 (665-668). IV, 1
- 631.423.3 : 631.416.2—Riehm, H.** The effects of soil type and reaction in the phosphate method of Egnér. *Bodenk. PflErnähr.* 21/22, 1940 (316-327). C.A. 37 (6388). VII, 2
- 631.423.3 : 631.416.2—Bal, D. V.; Krishnamurty, R. S.** A study of the methods of determination of phosphoric acid in soils. *Nagpur Univ. J.* No. 7, 1941 (68-72).
- 631.423.3 : 631.416.2—Beauchamp, C. E.** Colorimetric determination of phosphorus. *Proc. Ann. Conf. Cuban Sug. Tech. Assoc.* 15, 1941 (47-51). *Int. Sug. J.* 45 (160). B.C.A.B. III, 1943 (199).
- 631.423.3 : 631.416.2—Black, I. A.** Methods for determining phosphate in soil extracts. *Soil Sci.* 51, 1941 (289-298). IV, 4
- 631.423.3 : 631.416.2—Davtian, G. S.; Matskevich, V. V.** Determination of the total  $P_2O_5$  content in soil. *Pedology* No. 4, 1941 (78-82). [K.g.] V, 3
- 631.423.3 : 631.416.2—Giesecke, F.; Kühn, L.** Comparative tests of methods of determining phosphoric acid in plant ash. *Bodenk. PflErnähr.* 24, 1941 (370-371). [G.]
- 631.423.3 : 631.416.2—Egnér, H.** The Egnér lactate method for phosphate determination. *Amer. Fert.* 94, No. 5, 1941 (5-7, 22, 24, 26).
- 631.423.3 : 631.416.2—Herrmann, R.; Lederle, P.** Determination of lactate-soluble phosphoric acid in soils with the aid of the Photo-Rex apparatus. *Bodenk. PflErnähr.* 26, 1941 (105-124). [G.]
- 631.423.3 : 631.416.2—Herrmann, R.; Lederle, P.; Metzner, O. von.** Comparative tests of the photometric determination of phosphoric acid in Neubauer seedling ash. *Bodenk. PflErnähr.* 24, 1941 (356-369). [G.]
- 631.423.3 : 631.416.2—Iengar, N. G. C.; Warisi, S.; Bhai, S. S.** Colorimetric determination of phosphorus in soils. *Curr. Sci.* 10, 1941 (438-439). B.C.A.B. III, 1942 (145).
- 631.423.3 : 631.416.2—Mukherjee, M. K.** Studies on the fixation of phosphates in Indian red soils. I. Applicability of Truog's method for the determination of available phosphates. *Indian J. Agric. Sci.* 11, 1941 (243-248). V, 1
- 631.423.3 : 631.416.2—Schönfeld, A.; Dörmötör, E.** The laboratory determination of the fertilizer requirement of soils. *Bodenk. PflErnähr.* 25, 1941 (178-190). [G.] V, 2
- 631.423.3 : 631.416.2—Shelton, W. R.; Harper, H. J.** A rapid method for the determination of total phosphorus in soil and plant material. *Iowa St. Coll. J. Sci.* 15, 1941 (403-413). *Biol. Abs.* 16 (498).
- 631.423.3 : 631.416.2—Stolzenburg, U.** A new method, not involving the use of ammonium molybdate, for determining phosphoric acid (especially citrate-soluble) in Nitrophoska containing lime. *Bodenk. PflErnähr.* 26, 1941 (124-128). [G.]



# BIBLIOGRAPHY OF SOIL SCIENCE

- IV, 3      631.423.3 : 631.416.2—Weeks, M. E.; Karraker, P. E. A comparison of various extracting solutions for measuring the availability of phosphorus in soils of known fertilizer treatment and crop performance. *Soil Sci.* 51, 1941 (41-54).
- V, 2      631.423.3 : 631.416.2—Williams, E. G.; Stewart, A. B. The colorimetric determination of readily soluble phosphate in soils. *J. Soc. Chem. Indust.* 60, 1941 (291-297).
- 631.423.3 : 631.416.2—Bertramson, B. R. Studies on the ceruleomolybdate determination of phosphorus. *Soil Sci.* 53, 1942 (135-141).
- 631.423.3 : 631.416.2—Bondorff, K. A.; Damsgaard-Sørensen, P. The phosphoric-acid content of soils. III. A comparison of different chemical methods for determining the available phosphate in soil. *Tidsskr. Planteavl* 46, 1942 (377-425). C.A. 37 (5813).
- 631.423.3 : 631.416.2—Herrmann, R.; Lederle, P.; Metzen, O. von. A reply to the "Remarks on the paper by Herrmann, Lederle and von Metzen," by Neubauer and Tischer. *Bodenk. PflErnähr.* 28, 1942 (124-128). [G.]
- VI, 2      631.423.3 : 631.416.2—Nydahl, F. Ammonium phosphomolybdate in relation to the determination of phosphate. *LantbrHögsk. Ann.* 10, 1942 (109-208). [G.]
- 631.423.3 : 631.416.2—Sherman, M. S. Colorimetric determination of phosphorus in soils. Provision for eliminating the interference of arsenic. *Indust. Engng. Chem. (Anal. Ed.)* 14, 1942 (182-185). B.C.A.B.III, 1942 (162).
- VI, 1      631.423.3 : 631.416.2—Shrikhande, J. G. A new method for the determination of total phosphoric acid in soils. *J. Agric. Sci.* 32, 1942 (406-412).
- VI, 2      631.423.3 : 631.416.2—Sideris, C. P. Improvements in the colorimetric microdetermination of phosphorus. *Indust. Engng. Chem. (Anal. Ed.)* 14, 1942 (762).
- 631.423.3 : 631.416.2—Tischer, J.; Neubauer, H. The determination of phosphoric acid in the ash of Neubauer test seedlings. Remarks on the paper by Herrmann, Lederle and von Metzen. *Bodenk. PflErnähr.* 28, 1942 (119-123). [G.]
- VII, 3      631.423.3 : 631.416.2—Bonewitz, W. The formation of dehydrated phosphoric acid from orthophosphoric acid—a hitherto unrecognized source of error in the colorimetric determination of phosphoric acid in plant ash. Its relevance to the methods of Tischer and Scheel. *Bodenk. PflErnähr.* 32, 1943 (106-119). [G.]
- 631.423.3 : 631.416.2—Bray, R. H. Rapid tests for measuring and differentiating between the adsorbed and acid-soluble forms of phosphate in soils. *Conn. Fert.* 66, No. 1, 1943 (30-36). C.A. 37 (5813).
- VI, 4      631.423.3 : 631.416.2—Ghani, M. O. Fractionation of soil phosphorus. I. Method of extraction. *Indian J. Agric. Sci.* 13, 1943 (29-45).
- VII, 3      631.423.3 : 631.416.2—Herrmann, R.; Lederle, P. A modified Photo-Rex (tin-chloride) procedure for the determination of phosphate in extracts of soil made with lactate solution as proposed by H. Riehm. *Bodenk. PflErnähr.* 32, 1943 (306-315). [G.]

# FERTILIZERS AND GENERAL AGRONOMY

- 631.423.3 : 631.416.2—Herrmann, R.; Lederle, P.; Metzen, O. von.** Investigations on the "dehydration" of phosphoric acid in [Neubauer] seedling ash observed by W. Bonewitz. *Bodenk. PflErnähr.* 32, 1943 (120-125). [G.] VII, 3
- 631.423.3 : 631.416.2—Lawry, M. R.** Fixation of phosphate in some Victorian soils. *Proc. Roy. Soc. Queensland* 55, I, 1943 (1-12). C.A. 38 (1311). VII, 3
- 631.423.3 : 631.416.2—Okáč, A.** The extraction of "available" phosphate from soils in Egnér's method. *Bodenk. PflErnähr.* 32, 1943 (315-318). [G.] VII, 3
- 631.423.3 : 631.416.2—Herrmann, R.; Lederle, P.** A comprehensive account of procedure for the determination of phosphoric acid and potash by a colorimetric and flame-photometer technique worked out by us on the basis of a modification of H. Riehm's lactate soil extraction. *Bodenk. PflErnähr.* 34, 1944 (1-20). [G.] VII, 2
- 631.423.3 : 631.416.2 : 631.417—Madanov, P. V.** A method for determining organic phosphorus of the soil. *Uchen. Zap. Kazan. Gosud. Univ.* 100, Book 1, No. 3, 1940 (53-68). C.A. 37 (4843). IV, 2
- 631.423.3 : 631.416.2 : 631.417—Sokolov, D. F.** Determination of organically bound phosphorus in soils. *Pedology* No. 3, 1940 (118-125). [R.] V, 6
- 631.423.3 : 631.416.2 : 631.417—Ghani, M. O.** Determination of organic phosphorus in alkali extracts of soils. *Indian J. Agric. Sci.* 12, 1942 (336-340).
- 631.423.3 : 631.416.327—Maunsell, P. W.** The estimation of boron by means of quinalizarin. *N.Z. J. Sci. Tech.* 22, 1940 (100B-111B).
- 631.423.3 : 631.416.327—Olson, L. C.; DeTurk, E. E.** Rapid microdetermination of boron by means of quinalizarin and a photoelectric colorimeter. *Soil Sci.* 50, 1940 (257-264).
- 631.423.3 : 631.416.327—DeTurk, E. E.; Olson, L. C.** Determination of boron in some soils of Illinois and Georgia. *Soil Sci.* 52, 1941 (351-357).
- 631.423.3 : 631.416.327—McHargue, J. S.; Hodgkiss, W. S.** Comparison of perchloric acid distillation and sodium carbonate fusion for determination of total boron in soil. *J. Assoc. Off. Agric. Chem.* 24, 1940 (251-252). B.C.A.B. III, 1941 (250).
- 631.423.3 : 631.416.327—Manugue, R. I.** Determination of boron, with reference to soils. *Rev. Fac. Cienc. Quim. La Plata* 16, 1941 (261-270). C.A. 36 (6730).
- 631.423.3 : 631.416.327—Braadlie, O.; Moen, A.** Colorimetric determination of boron in soils. *Tidsskr. Kjemi Met.* 2, 1942 (37-38). C.A. 38 (3063).
- 631.423.3 : 631.416.327—McHargue, J. S.; Hodgkiss, W. S.** Report on boron and fluorine in soils. *J. Assoc. Off. Agric. Chem.* 25, 1942 (311-313).
- 631.423.3 : 631.416.327—Parks, R. Q.** A spectrochemical method for the determination of boron in synthetic mixtures of soil materials. *J. Opt. Soc. Amer.* 32, 1942 (233-237). C.A. 36 (3307).
- 631.423.3 : 631.416.327—Berger, K. C.; Truog, E.** Boron tests and determination for soils and plants. *Soil Sci.* 57, 1944 (25-36).

# BIBLIOGRAPHY OF SOIL SCIENCE

- 631.423.3 : 631.416.328.4**—McClellan, G. Rapid determination of silica in acid-insoluble silicates. *J. Assoc. Off. Agric. Chem.* 24, 1941 (111-113).
- V, 6 **631.423.3 : 631.416.328.4**—Sreenivasan, A. Determination of silica and phosphoric acid in soil extracts. *Soil Sci.* 54, 1942 (27-33).
- VI, 2 **631.423.3 : 631.416.4**—Grabarov, P. G.; Uvarova, Z. A. A comparison of methods for the determination of potassium in carbonate and salinized soils. *Trudy Kazakh. Inst. Zemled.* 1, 1939 (95-110). C.A. 36 (5595).
- 631.423.3 : 631.416.4**—Neugebauer, V.; Tanasijević, G. Determination of the readily assimilable potassium by the rapid nephelometric method of Peive. *Arkh. Min. Pol'opr.* 6, No. 16, 1939 (27-37). C.A. 36 (5302).
- IV, 6 **631.423.3 : 631.416.4**—Egnér, H. Determination of the potash requirement of soil by a chemical method. *Bodenk. PflErnähr.* 21-22, 1940 (270-276). *ForschDienst.* 11 (55). [G.]
- IV, 1 **631.423.3 : 631.416.4**—Klein, B.; Jacobi, M. Determination of small amounts of potassium. Evaluation of cobaltinitrite precipitate using ceric sulfate. *Indust. Engng. Chem. (Anal. Ed.)* 12, 1940 (687-688).
- 631.423.3 : 631.416.4**—Riehm, H. First tests of Egnér's new potash method on German soils compared with Neubauer's method. *Bodenk. PflErnähr.* 21-22, 1940 (277-286). *ForschDienst.* 11 (55). [G.]
- 631.423.3 : 631.416.4**—Burkhart, L. Potassium determination by the cobaltinitrite method as affected by temperature and pH. *Plant Physiol.* 16, 1941 (411-414).
- 631.423.3 : 631.416.4**—Endrédy, E. The determination of potassium in soil. I. *Mezőg. Kutat.* 14, 1941 (203-210). [H.g.]
- VII, 4 **631.423.3 : 631.416.4**—Riehm, H. The determination of the plant uptake of potash by the new potash method of Egnér. *ForschDienst. Sonderh.* 15, 1941 (83-92). C.A. 38 (2434).
- V, 1 **631.423.3 : 631.416.4**—Schachtschabel, P. The determination of potash requirements of soils. *Bodenk. PflErnähr.* 24, 1941 (371-384). [G.]
- IV, 6 **631.423.3 : 631.416.4**—Volk, N. J. The determination of small amounts of exchangeable potassium in soils, employing the sodium cobaltinitrite procedure. *J. Amer. Soc. Agron.* 33, 1941 (684-689).
- 631.423.3 : 631.416.4**—Hauser, G. F. Sedimentary determination of potassium and its use in soil investigations. *Ztschr. Anal. Chem.* 124, 1942 (321-324, 327-344). B.C.A.B. III, 1943 (230).
- VII, 3 **631.423.3 : 631.416.4**—Herrmann, R.; Lederle, P. The substitution of town gas for acetylene in the determination of potash by the flame photometer. *Bodenk. PflErnähr.* 30, 1942 (189-196). [G.]
- 631.423.3 : 631.416.4**—Malychin, F. Colorimetric determination of potassium in aqueous soil extracts. *Chem. Listy* 36, 1942 (2-6). C.A. 37 (4842).
- 631.423.3 : 631.416.4**—Riehm, H. Large-scale routine determination of available potash by Egnér's method, with particular reference to the use of a special flame-photometer. *Bodenk. PflErnähr.* 28, 1942 (246-256). [G.]

# FERTILIZERS AND GENERAL AGRONOMY

- 631.423.3 : 631.416.4—Riehm, H.** Chemical control of the soil. VII, 4  
*Zuckerrübenbau* 24, 1942 (101-104). C.A. 38 (3063).
- 631.423.3 : 631.416.4—Uhl, F. A.** The determination of small quantities of potash by simple means. *Ztschr. Anal. Chem.* 123, 1942 (322-333). [G.]
- 631.423.3 : 631.416.4—Wander, I. W.** Photometric determination of potassium. *Indust. Engng. Chem. (Anal. Ed.)* 14, 1942 (471-472).
- 631.423.3 : 631.416.4—Garman, W. H.** Phototronic method for determining potassium in soils and plants. *Soil Sci.* 56, 1943 (101-107).
- 631.423.3 : 631.416.4—Herrmann, R.** Summary report on the testing of rapid methods for determining available potash and the Riehm-Lange apparatus. *Bodenk. Pflernähr.* 29, 1943 (252-274). VI, 4  
[G.]
- 631.423.3 : 631.416.4—Herrmann, R.** Rapid methods for determining available potassium in soil. *ForschDienst.* 16, 1943 (239-244). VII, 3  
[G.]
- 631.423.3 : 631.416.4 Riehm, H.** Determination of the potash requirements of a soil from the potash content of a lactate extract. *Bodenk. Pflernähr.* 31, 1943 (346-356). [G.]
- 631.423.3 : 631.416.4 : 544.6—Rauterberg, E.; Knippenberg, E.** Potash determination by use of the flame photometer. *Ernähr. Pfl.* 37, 1941 (73-76). [G.] V, 1
- 631.423.3 : 631.416.4 : 631.416.2—Behrens, W. U.** Recent progress in the determination of potash and phosphoric-acid requirements of soils. *ForschDienst.* 9, 1940 (237-253). [G.]
- 631.423.3 : 631.416.4 : 631.416.2 Demolon, A.** Rapid determination of phosphoric acid and potash in soil for the purpose of determining fertilizer requirements. *C.R. Acad. Agric.* 27, 1941 (504-511). C.A. 38 (3405).
- 631.423.3 : 631.416.4 : 631.416.2—Riehm, H.** Recent investigations bearing on the lactate method. *ForschDienst.* 17, 1944 (32-39). VII, 3  
[G.]
- 631.423.3 : 631.416.5—Kriukov, P. A.; Kolarova, E. D.** Potentiometric micro-method for determining sodium (in soil analysis). *Pedology* No. 12, 1939 (76-86). [R.g.]
- 631.423.3 : 631.416.5—Manzon, E. D.** Determination of sodium by the colorimetric magnesium-uranyl-acetate method. *Trudi Inst. Sotsial. Zemlerob.* 4, 1939 (330-335). [U.r.] VI, 4
- 631.423.3 : 631.416.5—Beater, B. E.** Determination of sodium in soils. *J. S. Afric. Chem. Inst.* 23, 1940 (59-65). B.C.A. 59 (817).
- 631.423.3 : 631.416.5—McCormick, D. R.; Carlson, W. E.** Rapid determination of sodium in waters and soil extracts. *Chem.-Anal.* 31, 1942 (15). C.A. 36 (2361).
- 631.423.3 : 631.416.5—Shawarbi, M. Y.; Pollard, A. G.** Determination of small quantities of sodium in soil solutions and soil extracts. *J. Soc. Chem. Indust.* 62, 1943 (71-73).
- 631.423.3 : 631.416.7—Fynn, C. A.** Rapid determination of calcium and phosphorus in the soil. *Rev. Fac. Agron. Univ. Montevideo* 24, 1941 (33-40). C.A. 37 (1549). VII, 3
- 631.423.3 : 631.416.7—Marsden, A. W.** Micro-determination of calcium and magnesium. *J. Soc. Chem. Indust.* 60, 1941 (20-23). B.C.A.B. III, 1941 (61). IV, 4

# BIBLIOGRAPHY OF SOIL SCIENCE

- VII, 4    **631.423.3 : 631.416.7**—Drouineau, G. Rapid determination of the active lime content of soils. *Ann. Agron.* 12, 1942 (441-450). C.A. 38 (3405).
- 631.423.3 : 631.416.846**—Rader, L. F., Jr.; Zahn, K. V.; Whitaker, C. W. Comparison of chemical methods for estimating the availability of magnesium. *J. Assoc. Off. Agric. Chem.* 23, 1940 (404-411). E.S.R. 85 (6).
- IV, 6    **631.423.3 : 631.416.846**—Gillam, W. S. A photometric method for the determination of magnesium. *Indust. Engng. Chem. (Anal. Ed.)* 13, 1941 (499-501).
- 631.423.3 : 631.416.856**—Ivanov, D. N. Quantitative determination of copper in soils by spectral analysis. *Pedology* No. 11, 1939 (94-99). [R.e.]
- IV, 1    **631.423.3 : 631.416.856**—Korol, S. S. Determination of copper in soils. *Pedology* No. 3, 1940 (126-132). [R.]
- 631.423.3 : 631.416.856**—Scharer, K.; Kühn, H. The dithizone mixed-colour method and its use in determining small quantities of copper in soils and biochemical substances. *Bodenk. PflErnähr.* 21/22, 1940 (344-364). *ForschDienst.* 11 (55). [G.]
- VI, '3    **631.423.3 : 631.416.856**—Sherman, G. D.; McHargue, J. S. Methods for determination of copper and zinc in soil. *J. Assoc. Off. Agric. Chem.* 25, 1942 (510-515). C.A. 36 (4647).
- VI, 2    **631.423.3 : 631.416.862.1**—Seixas Quelroz, M.; Palva Neto, E. C. A volumetric method for the determination of aluminium and its application to the determination of alumina in soil complexes. *Rev. Brasil. Quim.* 13, 1942 (137-139). C.A. 36 (4248).
- 631.423.3 : 631.416.871.1**—Sherman, G. D.; McHargue, J. S.; Hodgkiss, W. S. Determination of active manganese in soil. *Soil Sci.* 54, 1942 (253-257).
- VII, 3    **631.423.3 : 416.871.1**—Vlasiuk, P. A.; Gornaya, V. Ya. Determination of manganese in soils. *Pedology* No. 9-10, 1943 (75-76). [R.]
- 631.423.3 : 631.416.872**—Harada, M. Weathering of igneous rock. VII. A new method of estimation of free ferric oxide. *J. Agric. Chem. Soc. Japan* 16, 1940 (541-551). C.A. 35 (556). [J.g.]
- 631.423.3 : 631.416.872**—Ignatieff, V. Determination and behavior of ferrous iron in soils. *Soil Sci.* 51, 1940 (249-263).
- 631.423.3 : 631.416.872**—Lee, C. K. Determination of ferrous iron in soils. *J. Chinese Chem. Soc.* 8, 1941 (65-66). B.C.A.B. III, 1943(230).
- VII, 4    **631.423.3 : 631.416.872**—Braadlie, O.; Bergh, H. A colorimetric method for determining ferrous iron, especially in soils. *Tidsskr. Kjem. Met.* 2, 1942 (49-51). C.A. 38 (2432).
- 631.423.3 : 631.416.872**—Droudoff, M. The determination of free iron oxides in soil colloids. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (131-132).
- 631.423.3 : 631.416.872**—Kunin, R. Determination of iron in soils and silicates by the mercurous nitrate method. *Soil Sci.* 53, 1942 (211-214).
- 631.423.3 : 631.416.872**—Kunin, R. Microdetermination of iron by the mercurous nitrate method. *Soil Sci.* 55, 1943 (457).
- IV, 5    **631.423.3 : 631.416.873**—Black, I. A. Notes on the colorimetric determination of traces of cobalt. *Soil Sci.* 51, 1941 (387-390).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.423.3 : 631.416.873 : 631.416.876**—Davidson, A. M. M.; Mitchell, R. L. The determination of cobalt and chromium in soils. *J. Soc.Chem. Indust.* 59, 1940 (232-235). IV, 1
- 631.423.3 : 631.416.876**—Herrmann, R.; Lederle, P. Methods for the determination of trace elements in soil. II. The determination of chromium. *Bodenk. PflErnähr.* 28, 1942 (291-324). [G.] VI, 1
- 631.423.3 : 631.416.877**—Nichols, M. L.; Rogers, L. H. Determination of small amounts of molybdenum in plants and soils. *Indust. Engng. Chem. (Anal. Ed.)* 16, 1944 (137-140). VII, 3
- 631.423.3 : 631.811.4**—Laník, J.; Janíček, C. G. A new apparatus for the routine analysis of soils. *Chem. Obzor* 15, 1940 (49-50). C.A. 34 (6746).
- 631.423.3 : 631.811.4**—Nikanorova, N. N. The liming of collective-farm fields. *Trans. Dokuchaev Inst.* 21, 1940 (35-52). C.A. 37 (4845).
- 631.423.3 : 631.811.4**—Duchon, F. A new Laník-Janíček apparatus for routine determination of lime requirements of soils by the Goy-Roos method. *Zeměd. Arch.* 32, 1941 (22-27). *Forsch.-Dienst.* 13 (86).
- 631.423.3 : 631.811.4**—Kick, H. Base status and acidity relationships of five agriculturally important soils of Württemberg as related to lime requirement. *Bodenk. PflErnähr.* 23, 1941 (31-63). [G.] IV, 6
- 631.423.3 : 631.811.4**—Laník, J.; Janíček, G. A simple and convenient apparatus for the routine determination of the lime-requirement of soil by the Goy-Roos method. *Bodenk. PflErnähr.* 23, 1941 (63-70). [G.] IV, 6
- 631.423.3 : 631.811.4**—Marks, R. Comparative researches into the determination of lime requirements of soil. *Bodenk. PflErnähr.* 25, 1941 (369-384). [G.] V, 2
- 631.423.3 : 631.811.4**—Schachtschabel, P. Determination of the lime requirements of soil. *ForschDienst. Sonderh.* 15, 1941 (93-107). C.A. 38 (2432). VII, 4
- 631.423.3 : 631.811.4**—Schachtschabel, P. Further investigations into the determination of lime requirement. *Bodenk. PflErnähr.* 25, 1941 (37-57). [G.]
- 631.423.3 : 631.811.4**—Uhl, F. A. The hydrolytic-acidity method of determining the lime requirement of soil. *Bodenk. PflErnähr.* 28, 1942 (186-190). [G.]
- 631.423.3 : 631.811.4**—Dunn, L. E. Lime-requirement determinations of soils by means of titration curves. *Soil Sci.* 56, 1943 (341-351). VII, 2
- 631.423.3 : 631.811.4**—Lucas, R. E. Reliability of lime requirement calculations based on the rapid copper method for exchange capacity. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (362-367). *Biol. Abs.* 17 (2181). VII, 1
- 631.423.3 : 631.811.9**—Rogers, L. H.; Hughes, R. C. Some physical and chemical methods used in determining the trace element content of soil, plant and animal materials. *Proc. Soil Sci. Soc. Florida* 2, 1940 (59-67). C.A. 36 (2359). VI, 3
- 631.423.4**—Gollán, J., Jr.; Mallea, O. Determination of humus and its adsorptive capacity in the soil. *Rev. Fac. Quím. Indust. Agríc. Univ. Santa Fé* (1939) 8, 1940 (77-94). C.A. 35 (4535). IV, 6

# BIBLIOGRAPHY OF SOIL SCIENCE

- IV, 4     **631.423.4—Hurutani, S.** The determination of soil carbon by rapid titration methods. *J. Sci. Soil Japan* 14, 1940 (770-776). C.A. 35 (1560). [J.e.]
- 631.423.4—Lazaro, R. C.** The applicability of the Walkley-Black volumetric method for the determination of organic matter of soils in the agrological investigations in Uruguay. *Rev. Fac. Agron. Univ. Montevideo* 23, 1941 (85-95). Biol. Abs. 16 (1876).
- 631.423.4—Plice, M. J.; Lunin, J.** A rapid method of determining the total carbon content of soils using perchloric acid. *J. Amer. Soc. Agron.* 33, 1941 (851-855).
- VII, 2     **631.423.4—Sik, K.** Determination of the organic carbon content of soils by means of potassium permanganate. *Mezőg. Kutat.* 14, 1941 (313-316). C.A. 37 (4511).
- 631.423.4—Smith, H. W.; Weldon, M. D.** A comparison of some methods for the determination of soil organic matter. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (177-182).
- VII, 3     **631.423.4—Springer, U.** Analysis of radicle complexes: its importance and performance with some suggestions for its improvement. *ForschDienst. Sonderh.* 17, 1941 (21-23). [G.]
- 631.423.4—Alper, P.** Note on an accurate wet combustion method for the determination of carbon in soils. *J. Agric. Sci.* 32, 1942 (389).
- 631.423.4—Clark, N. A.; Ogg, G. L.** A wet combustion method for determining total carbon in soils. *Soil Sci.* 53, 1942 (27-35).
- VI, 1     **631.423.4—Fuchs, P.** Practical aspects of the preparation of hypochlorite solution, and a new and simple method for its titration. *Bodenk. PflErnähr.* 28, 1942 (385-388). [G.]
- V, 5     **631.423.4—Hutton, C. E.; Simonson, R. W.** Comparison of dry combustion and Walkley-Black methods for the determination of organic carbon distribution in soil profiles. *J. Amer. Soc. Agron.* 34, 1942 (586-592).
- 631.423.4—Ogg, G. L.** Acid oxidation method for determining soil carbon. *Iowa St. Coll. J. Sci.* 17, 1942 (104-105).
- V, 3     **631.423.4—Uhl, F. A.** A new method of determining humus (organic matter) in peat and soil samples. *Bodenk. PflErnähr.* 26, 1942 (298-308); 28, 1942 (324). [G.]
- 631.423.4—Vicente, J. G.** Determination of carbon in soils. *An. Fis. Quim.* 38, 1942 (149-158). C.A. 37 (4841).
- VII, 1     **631.423.4—Kelley, C. W.; Thomas, R. P.** A method of estimating the organic exchange complex of a soil. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (201-206). Biol. Abs. 17 (2180).
- 631.423.4—McCalla, T. M.; Duley, F. L.; Goodding, T. H.** A method of measuring the plant residue fragments of the soil. *Soil. Sci.* 55, 1943 (159-166).
- VII, 1     **631.423.4—Wilde, S. A.** Rapid colorimetric determination of soil organic matter. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (393-394). Biol. Abs. 17 (1962).
- IV, 6     **631.423.4 : 547.222—Daroga, R. P.; Pollard, A. G.** Colorimetric method for the determination of minute quantities of carbon tetrachloride and chloroform in air and in soil. *J. Soc. Chem. Indust.* 60, 1941 (218-222).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.423.4 : 577.15.04—Hamence, J. H.** The detection and estimation of auxins in organic manures. <sup>1</sup>Part I.  $\beta$ -indolyl acetic acid or hetero-auxin.  $\beta$ -indolyl propionic acid and  $\beta$ -indolyl butyric acid. *Analyst* 68, 1943 (356-361). VII, 1
- 631.423.4 : 577.15.04—Hamence, J. H.** The detection and determination of auxins in organic manures. Part II. Extraction of auxins from manures, and applications of the perchloric acid test for  $\beta$ -indolyl acetic acid and of the Went pea test. *Analyst* 69, 1944 (229-235). VII, 4
- 631.423.4 : 631.417.2—Malomakhova, T. A.** A simplified method for separating loosely bound humus of chernozems. *Pedology* No. 3, 1939 (97-99). C.A. 35 (1919). [R.] IV, 4
- 631.423.4 : 631.417.2—Schachtschabel, P.** The effect of the accompanying ions in colorimetry. *ForschDienst. Sonderh.* 17, 1941 (29-32). [G.] VII, 4
- 631.423.4 : 631.417.2—Schmalfuss, K.** Nutrient humus. *ForschDienst. Sonderh.* 17, 1941 (15-18). [G.] VII, 3
- 631.423.4 : 631.417.2—Siegel, O.** The characterization of dark-coloured humus substances by means of extraction techniques. *ForschDienst. Sonderh.* 17, 1941 (24-25). [G.] VII, 3
- 631.423.4 : 631.417.2—Springer, U.** The effect of preliminary acid treatments and of substances (especially acetic acid) in mixture with acetyl bromide, on values obtained in humus determinations. *Bodenk. PflErnähr.* 23, 1941 (281-313). [G.] IV, 6
- 631.423.4 : 631.417.2—Springer, U.** Humus colorimetry and its quantitative reliability. *ForschDienst. Sonderh.* 17, 1941 (26-28). [G.] VII, 3
- 631.423.4 : 631.417.2—Vlasuk, P. A.; Zrazhevsky, A. I.** Determination of loosely bound humic substances in chernozems and podzolized soils. *Pedology* No. 1, 1941 (57-60). [R.] V, 3
- 631.423.4 : 631.417.745.881—Khan Denkho.** Determination of semi-decomposed plant residues in soils. *Dokl. Akad. S.-Kh. Nauk* No. 6, 1941 (37-41). [R.] V, 1
- 631.423.4 : 631.417.747.45—Bartholomew, W. V.; Norman, A. G.** The determination of uronic groups in soils and plant materials. *Iowa St. Coll. J. Sci.* 15, 1941 (253-260). IV, 6
- 631.423.5—Sakharov, P.** Galvanic-couple method for the determination of the degree of soil salinization and of water salinity. *Sovet. Khlopok* 10, 1939 (35-39). *Pedology* No. 12, 1939 (83). V, 2
- 631.423.5—Hoon, R. C.; Malhotra, J. K.; Jain, L. C.** Conductometric method of determining the soluble salt content of soils for use in soil-survey work. *J. Indian Chem. Soc.* 18, 1941 (103-111). B.C.A.B. III, 1941 (277).
- 631.423.5—Reltemeler, R. F.** Semi-micro-analysis of saline soil solutions. *Indust. Engng. Chem. (Anal. Ed.)* 15, 1943 (393-402). B.C.A.B. III, 1943 (198).
- 631.423.6—Shaw, W. M.; MacIntire, W. H.** Steam distillation—a new procedure for the determination of carbonate  $\text{CO}_2$ . *J. Assoc. Off. Agric. Chem.* 26, 1943 (357-396). VI, 4
- 631.423.7—Jung, A.** A pressure filter for use in the determination of exchangeable bases in soil. *Bodenk. PflErnähr.* 17, 1940 (109-111). *Mezőg. Kutat.* 13 (154). [G.]



# BIBLIOGRAPHY OF SOIL SCIENCE

- VI, 3 631.423.7—Mavrodineanu, R. The estimation of replaceable bases of soil. *Bull. Soc. Chim. Fr.* 7, 1940 (485-492). C.A. 36 (1425).
- IV, 6 631.423.7—Lunt, H. A. Soil analyses significant in forest soils investigations and methods of determination: 1. Exchangeable bases, exchangeable hydrogen, and total base capacity. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (344-349).
- IV, 5 631.423.7—Peech, M. Determination of exchangeable bases in soils. Rapid micromethods. *Indust. Engng. Chem. Anal. Ed.* 13, 1941 (436-441).
- VII, 4 631.423.7—Paiva Neto, J. E. de. Determination of the T—S value for the true "red earth" and the application of the Vageler formula. *Bragantia* 2, 1942 (339-353). C.A. 38 (3767).
- 631.423.7—Shaw, W. M. Report on liming materials. Determination of exchangeable hydrogen in soils. *J. Assoc. Off. Agric. Chem.* 25, 1942 (303-311).
- 631.423.7—Brown, I. C. A rapid method of determining exchangeable hydrogen and total exchangeable bases of soils. *Soil Sci.* 56, 1943 (353-357).
- VII, 1 631.423.7—Golden, L. B.; Gammon, N.; Thomas, R. P. A comparison of methods of determining the exchangeable cations and the exchange capacity of Maryland soils. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (154-161). Biol. Abs. 17 (2179).
- VII, 1 631.423.7—Mehlich, A. The significance of percentage base saturation and pH in relation to soil differences. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (167-174). Biol. Abs. 17 (2182).
- IV, 1 631.423.7 : 544.6 Ells, V. R.; Marshall, C. E. The determination of exchangeable bases by the Lundegårdh spectrographic method. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (131-135).
- IV, 1 631.423.7 : 631.414.3.03—Broadfoot, W. M.; Tyner, E. H. Studies on some factors affecting the quantitative estimation of the exchange capacity of organic matter. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (156).
- V, 2 631.423.7 : 631.414.3.03—Kuron, H.; Jung, A. Determination of the adsorption capacity of soils and of soil colloids. *Bodenk. Pflernähr.* 21 22, 1940 (568-574). *Mezőg. Kutat.* 14 (164). [G.]
- IV, 1 631.423.7 : 631.414.3.03—Mitra, R. P.; Mitra, A. K. The base binding capacities of hydrogen clays as determined by different methods. I. *Indian J. Agric. Sci.* 10, 1940 (344-351).
- VII, 1 631.423.7 : 631.414.3.03—Shchukina, A. Determination of the adsorption capacity in carbonate and non-carbonate soils. *Sotsial. Zern. Khoz.* No. 6, 1940 (147-152). *Pedology* No. 1-2, 1943 (57). [R.]
- 631.423.7 : 631.414.3.03—Austerweil, G. Simplified method for the determination of the exchange capacity of soils. *C.R.* 213, 1941 (505-508). C.A. 37 (3214).
- IV, 6 631.423.7 : 631.414.3.03—Bower, C. A.; Truog, E. Base exchange capacity determination as influenced by nature of cation employed and formation of basic exchange salts. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (86-89).
- IV, 3 631.423.7 : 631.414.3.03—Stieling, D. H. Base exchange capacity determination of soils by means of a rapid colorimetric copper method. *J. Amer. Soc. Agron.* 33, 1941 (24-36).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.423.7 : 631.414.3.03**—Antipov-Karataev, I. N.; Firsova, E. S. Methods of investigating the absorption capacity of soils (in connexion with the resolution passed at the Third International Congress of Soil Science, Oxford, 1935). *Pedology* Nos. 3-4, 1942 (90-102). [R.e.]
- 631.423.7 : 631.414.3.03**—Grabarov, P. G.; Uvarova, Z. A. A new method of determining the exchange capacity of carbonated soils by means of a buffered solution of barium chloride. *Pedology* No. 9, 1942 (61-69). C.A. 36 (1718). [R.g.] VI, 3
- 631.423.7 : 631.414.3.03**—Mehlich, A. Rapid estimation of base-exchange properties of soil. *Soil Sci.* 53, 1942 (1-14). V, 3
- 631.423.7 : 631.414.3.03**—Mehlich, A. Adsorption of barium and hydroxyl ions by soils and minerals in relation to pH. *Soil Sci.* 53, 1942 (115-124). V, 4
- 631.423.7 : 631.414.3.03**—Mukherjee, J. N.; Mitra, R. P.; Ghosh, K. C. Mixed cation effects in the estimation of base-exchange capacities of hydrogen-clays. *J. Indian Chem. Soc.* 19, 1942 (397-398). B.C.A.A.I. 1943 (172). VI, 4
- 631.423.7 : 631.414.3.03**—Mados, L. A rapid method for the serial determination of the degree of unsaturation of soils. *Bodenk. PflErnähr.* 32, 1943 (351-364). [G.] VII, 3
- 631.423.7 : 631.414.3.03**—Cantino, E. C. Semimicrodetermination of the exchange capacity of soils. *Soil Sci.* 57, 1944 (399-404). VII, 4
- 631.423.7 : 631.416.4**—Nehring, K. The determination of exchangeable potassium as a means of evaluating the potash requirement of soils. *Bodenk. PflErnähr.* 30, 1942 (36-51). C.A. 38 (1061). [G.] VII, 3
- 631.423.7 : 631.416.4**—Pavlovski, G.; Mavrodineanu, R.; Ionescu, I. The technique of determination of exchangeable potash. *Bodenk. PflErnähr.* 29, 1943 (300-309). [G.] VII, 1
- 631.423.7 : 631.416.5**—Kazin, K. P. Determination of exchangeable sodium by the carbonate method of Gedroits. *Sotsial. Zern. Khaz.* No. 4, 1939 (124-126). C.A. 36 (3307). VI, 3
- 631.423.7 : 631.416.846**—Merson, A. J. The determination of replaceable magnesium in soils, using 8-hydroxyquinoline. *N.Z. J. Sci. Tech.* 22, 1940 (125B-135B). IV, 6
- 631.423.7 : 631.416.846**—Peech, M. Determination of exchangeable magnesium in soils by Titan yellow with reference to magnesium deficiency in citrus. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (189-195).
- 631.423.7 : 631.416.846**—Shaw, W. M. Solubilities of calcic and magnesian limestones in neutral n-ammonium acetate. *J. Assoc. Off. Agric. Chem.* 24, 1941 (244-249). B.C.A.B. I, 1941 (444).
- 631.423.7 : 631.416.862.1**—Filosofov, B. I. Determination of exchange aluminium of the soil in salt extracts. *Izv. Azerbaidzhan. Fil. Akad. Nauk* No. 5, 1940 (77-78). C.A. 37 (6390). VII, 2
- 631.423.7 : 631.416.862.1**—Filosofov, B. I. The effect of drying soil on the determination of exchange aluminium. *Izv. Azerbaidzhan. Fil. Akad. Nauk* No. 5, 1940 (75-77). C.A. 37 (6390).
- 631.423.7 : 631.416.862.1**—Palva Neto, J. E. de. Rapid determination of ionic hydrogen and aluminium in soil percolates. *Rev. Brasil. Quim.* 16, 1943 (327). C.A. 38 (4078). VII, 4

# BIBLIOGRAPHY OF SOIL SCIENCE

- VII, 3     **631.423.7 : 631.437.36—Karpechenko, D. P.** The determination of the sum of the absorbed cations by the method of electro-dialysis. *Sborn. Pam. W. R. Williams*, 1942 (361-368). [R.]

## 631.425 PHYSICAL ANALYSIS

- 631.425—Gardner, V. R.** Techniques and tools for determining the physical properties of soils. *Mich. Agric. Expt. Sta. Quart. Bull.* 24, 1941 (3-6). E.S.R. 86 (16).
- 631.425.1—Lutz, H. J.** Soil analyses significant in forest soils investigations and methods of determination: 2. Measurement of certain physical properties of forest soils. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (350-351).
- 631.425—Tamés Alarcón, C.** Methods for the study of cultivated soils. *Bol. Inst. Investig. Agron. Madrid* No. 6, 1942 (17-123). [Sp.]
- VII, 4     **631.425—Lutz, H. J.** Determination of certain physical properties of forest soils: 1. Methods utilizing samples collected by metal cylinders. *Soil Sci.* 57, 1944 (475-487).
- 631.425.1—Turkhin, E. I.** Determination of the specific gravity of soils by treatment with paraffin wax. *Pedology* No. 10, 1940 (88-95). C.A. 37 (4510).
- VI, 3     **631.425.1—Carey, A. S.; Harstad, H. T.** Measuring soil-sample volume by improved methods. *Engng. News-Rec.* 128, 1942 (419-420). C.A. 36 (3605).
- V, 6     **631.425.1—Lauritzen, C. W.; Stewart, A. J.** Soil-volume changes and accompanying moisture and pore-space relationships. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (113-116).
- VII, 3     **631.425.1—Bauer, E. E.** Factors affecting specific gravity values in the proposed method of test for soils. *ASTM Bull.* 125, 1943 (33-34). C.A. 38 (1060).
- VII, 1     **631.425.1—Perry, E. P.** A simple rapid method of determining the apparent density of soil aggregates. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (409-411). *Biol. Abs.* 17 (2183).
- 631.425.1—Smith, W. O.** Density of soil solids and their genetic relations. *Soil Sci.* 56, 1943 (263-272).
- 631.425.1.005—Reinau, E. H.** Volumenometers. *Bodenk. PflErnähr.* 32, 1943 (319-324). [G.]
- IV, 2     **631.425.22—Grabarov, P. G.** A new rapid method of determining soil moisture. *Pedology* No. 11, 1939 (89-93). [R.]
- V, 2     **631.425.22—Karasev, N. K.** Accelerated drying of soil for moisture determinations. *Mt. Hydrol.* No. 7-8, 1939 (146-150). *Pedology* No. 11, 1940 (110).
- V, 2     **631.425.22—Vasil'ev, I. S.** Technique of determining soil moisture. *Probl. Sovet. Pochved.* 9, 1939 (93-106). *Pedology* No. 11, 1940 (110).
- V, 2     **631.425.22—Voskresensky, M. N.** A method for the rapid determination of soil moisture. *Hydrotekh. Sborn.* 9, 1939 (99-102). *Pedology* No. 11, 1940 (108).
- 631.425.22—Voskresensky, M.; Levina S.** A rapid method of determining soil moisture. *Pedology* No. 12, 1939 (87-90). [R.g.]
- IV, 2     **631.425.22—Vasiliadis, C.** A method for the determination of water in soil. *Bodenk. PflErnähr.* 17, 1940 (139-147). *Mezőg. Kutat.* 13 (184).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.425.22—Enge, G. A trial of a new rapid method for determining the moisture content of soils. *Bodenk. PflErnähr.* 25, 1941 (368-369). [G.]
- 631.425.22—Papadakis, J. S. A rapid method for determining soil moisture. *Soil Sci.* 51, 1941 (279-281). IV, 4
- 631.425.22—Carey, A. S.; Walter, B. H. Finding moisture content of soil by water-displacement method. *Engng. News-Rec.* 128, 1942 (493-494). C.A. 36 (3605). VI, 3
- 631.425.22—Davis, W. E.; Slater, C. S. A direct weighing method for sequent measurements of soil moisture under field conditions. *J. Amer. Soc. Agron.* 34, 1942 (285-287).
- 631.425.22—Locket, G. H.; Barrett, W. H. Determination of water in soils. *Nature* 149, 1942 (612). B.C.A.B. 111, 1942 (177). V,
- 631.425.22—MacGillivray, J. H.; Doneen, L. D. Soil moisture conditions as related to the irrigation of truck crops on mineral soils. *Proc. Amer. Soc. Hort. Sci.* (1942) 40, 1942 (483-492).
- 631.425.22 : 553.97—Berthelot, C. Humic substances in peat—determination of the water content of peat. *Chim. Indust.* 47, 1942 (536-538). C.A. 37 (4550).
- 631.425.22 : 581.032.3—Arena, A. A simple tonometric method for the indirect determination of the wilting coefficient of soil. *Rev. Argent. Agron.* 8, 1941 (220-234). Biol. Abs. 16 (718). [Sp.e.]
- 631.425.22 : 581.032.3—Staple, W. J.; Lehane, J. J. The use of the wilting coefficient in soil moisture studies in southwestern Saskatchewan. *Sci. Agric.* 21, 1941 (440-447). IV, 4
- 631.425.22 : 581.032.3—Boutaric, A. A simple method for the determination of the wilting point of soils. *C.R. Acad. Agric.* 28, 1942 (538-540). C.A. 38 (3768).
- 631.425.22 : 581.032.3—Williams, R. F.; Marshall, T. J. Determination of the permanent wilting percentage of soils. *J. Aust. Inst. Agric. Sci.* 8, 1942 (109-111). Hort. Abs. 13 (3). B.C.A.B. 111, 1943 (29). VI, 3
- 631.425.22 : 581.032.3—Richards, L. A.; Weaver, L. R. Fifteen-atmosphere percentage as related to the permanent wilting percentage. *Soil Sci.* 56, 1943 (331-339). VII, 2
- 631.425.22 : 631.437.226.1—Fletcher, J. E. A dielectric method for determining soil moisture. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (84-88). IV, 1
- 631.425.22 : 631.437.226.1—Anderson, A. B. C.; Edlefsen, N. E. The electrical capacity of the 2-electrode plaster of Paris block as an indicator of soil-moisture content. *Soil Sci.* 54, 1942 (35-46). V, 6
- 631.425.22 : 631.437.226.1—Anderson, A. B. C. A method of determining soil-moisture content based on the variation of the electrical capacitance of soil, at a low frequency, with moisture capacity. *Soil Sci.* 56, 1943 (29-41). VI, 4
- 631.425.22 : 631.437.226.1—Childs, E. C. A note on electrical methods of determining soil moisture. *Soil Sci.* 55, 1943 (219-223). VI, 3
- 631.425.22 : 631.437.31—Bouyoucos, G. An electrical resistance method for making continuous measurement of moisture in concrete pavements and in soils under road conditions. *J. Amer. Soc. Agron.* 32, 1940 (817-818). IV, 2

# BIBLIOGRAPHY OF SOIL SCIENCE

- 631.425.22 : 631.437.31**—Partridge, N. L. Experiences in the use of the electrical resistance method of Bouyoucos and Mick in measuring soil moisture under field conditions. *Natl. Shade Tree Conf. Proc.* 16, 1940 (120-127). C.A. 35 (3751).
- IV, 1 **631.425.22 : 631.437.31**—Shaw, B.; Bayer, L. D. An electrothermal method for following moisture changes of the soil *in situ*. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (78-83).
- IV, 6 **631.425.22 : 631.437.31**—Bouyoucos, G. J.; Mick, A. H. Comparison of absorbent materials employed in the electrical resistance method of making a continuous measurement of soil moisture under field conditions. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (77-79).
- IV, 6 **631.425.22 : 631.437.31**—Cummings, R. W.; Chandler, R. F., Jr. A field comparison of the electrothermal and gypsum block electrical resistance method with the tensiometer method for estimating soil moisture *in situ*. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (80-85).
- IV, 5 **631.425.22 : 631.437.31**—Edlefsen, N. E.; Anderson, A. B. C. The four-electrode resistance method for measuring soil-moisture content under field conditions. *Soil Sci.* 51, 1941 (367-376).
- V, 5 **631.425.22 : 631.437.31**—Anderson, A. B. C.; Edlefsen, N. E. Laboratory study of the response of 2- and 4-electrode plaster of Paris blocks as soil-moisture content indicators. *Soil Sci.* 53, 1942 (413-428).
- VI, 1 **631.425.22 : 631.437.31**—Edlefsen, N. E.; Anderson, A. B. C.; Marcum, W. B. Field study of response of the electrical resistance of 2- and 4 electrode plaster of Paris blocks to variations in soil moisture. *Soil Sci.* 54, 1942 (275-279).
- V, 4 **631.425.22 : 631.437.31**—Slater, C. S. A modified resistance block for soil moisture measurement. *J. Amer. Soc. Agron.* 34, 1942 (284-285).
- 631.425.22.005**—Coke, J. E. New equipment for speedy determination of soil moisture. *Sug. Beet Bull.* 4, No. 6, 1940 (24-25). F.A.S. 35, 10 (34).
- 631.425.22.005**—LeCompte, S. B., Jr. Intermittently operated irrigator cones as indicators of soil-moisture condition in drying cylinder cultures of white lupine. *Amer. J. Bot.* 27, 1940 (586-595). Biol. Abs. 15 (287). C.A. 35 (1165).
- V, 4 **631.425.22.005**—Allyn, R. B. A calibrated soil probe for measuring field soil moisture. *Soil Sci.* 53, 1942 (273-285).
- 631.425.22.005**—Johnston, C. N. Water-permeable jacketed thermal radiators as indicators of field capacity and permanent wilting percentage in soils. *Soil Sci.* 54, 1942 (123-126).
- VII, 2 **631.425.22.005**—Richards, L. A.; Weaver, L. R. The sorption-block soil moisture meter and hysteresis effects related to its operation. *J. Amer. Soc. Agron.* 35, 1943 (1002-1011).
- 631.425.221**—Reeve, J. O.; Furr, J. R. Evaporation from a shallow black pan evaporimeter as an index of soil moisture extraction by mature citrus trees. *Proc. Amer. Soc. Hort. Sci.* (1941) 39, 1941 (125-132). Hort. Abs. 12 (45).
- 631.425.221**—Hendrickson, A. H. Determination of the losses of moisture by evaporation from soils in a watershed-area. *Trans. Amer. Geophys. Un.* 23, Pt. 2, 1942 (471-477). E.S.R. 88 (737).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.425.221—Arzt, T. Evaporation measurements on soil with a new apparatus. *Bodenk. PflErnähr.* 35, 1944 (107-170). [G.] VII, 4
- 631.425.23—Nelson, L. B.; Muckenhirn, R. J. Field percolation rates of four Wisconsin soils having different drainage characteristics. *J. Amer. Soc. Agron.* 33, 1941 (1028-1036).
- 631.425.23—Kothari, D. S.; Auluck, F. C. Darcy's law and upward movement of water in soil. *Curr. Sci.* 11, 1942 (430). B.C.A.B. III, 1943 (197).
- 631.425.23—Duley, F. L.; Domingo, C. E. Reducing the error of infiltration determinations by means of buffer areas. *J. Amer. Soc. Agron.* 35, 1943 (595-604). VI, 4
- 631.425.23—Patty, R. L. How to determine the drainability of soils. *Agric. Engng.* 25, 1944 (221-222).
- 631.425.23.005—Dudnikov, M. F. The Ostwald apparatus and its application for filtration analysis of soils. *Uchen. Zap. Saratov. Gosud. Univ.* 15, No. 2, 1940. C.A. 38 (1311). VII, 3
- 631.425.23.005—Sevost'ianov, F. G. A method for the study of water permeability of soils. *Pedology* No. 11, 1940 (69-75). [R.] IV, 4
- 631.425.23.005—Pittman, D. D.; Kohnke, H. An automatic self-recording infiltrometer. *Soil Sci.* 53, 1942 (429-434).
- 631.425.23.005—Fitzhugh, E. A. Goldbergerian gadget may boost Valley's output. *Soil Conservation* 9, 1944 (228-231). VII, 4
- 631.425.24—Jacob, A.; Loofmann, H. Comparison of various methods for estimating pF value with montmorillonite saturated with different cations as the sample. *Bodenk. PflErnähr.* 17, 1940 (130-139). *Biol. Abs.* 15 (528). C.A. 34 (8130). [G.] IV, 4
- 631.425.24—Browning, G. M.; Milam, F. M. A comparison of the Briggs-McLane and the Goldbeck-Jackson centrifuge methods for determining the moisture equivalent of soils. *Soil Sci.* 51, 1941 (273-278).
- 631.425.24—Heinrich, F. A contribution to the determination of "minimal water-capacity" of diluvial sand soils. *Bodenk. PflErnähr.* 26, 1941 (84-96). [G.] V, 4
- 631.425.24—Tarasiuk, G. G. Determination of the field moisture capacity of soil samples with unbroken structure. *Dokl. Akad. S.-Kh. Nauk* No. 7, 1941 (45-48). [R.]
- 631.425.24—Alson, P. W. Technique of determination of the "moisture equivalent" of soils. *Prac. Amer. Soc. Sug. Beet Tech.* 3, 1942 (576-577). *Int. Sug. J.* 46 (242).
- 631.425.24—Anderson, A. B. C.; Edlefsen, N. E. Volume—freezing-point relations observed with new dilatometer technique. *Soil Sci.* 54, 1942 (221-232).
- 631.425.24—Costa, J. V. B. da.; Alves, J. A. Determination of the moisture equivalent by the suction method. *J. Agric. Sci.* 32, 1942 (294-297). V, 6
- 631.425.24—Davidson, A. L. C.; Schofield, R. K. Measurement of the suction of soil water by Portland stone absorbers calibrated by a new method for determining vapour pressures near to saturation. *J. Agric. Sci.* 32, 1942 (413-427). VI, 1
- 631.425.24—Zunker, F. Determination of the available water-holding capacity of soil by a suction procedure. *Bodenk. PflErnähr.* 29, 1943 (342-353). [G.] VII, 1

# BIBLIOGRAPHY OF SOIL SCIENCE

- 631.425.24.005—Russell, M. B.; Davis, F. E.; Blair, R. A.** The use of tensiometers for following soil moisture conditions under corn. *J. Amer. Soc. Agron.* 32, 1940 (922-930).
- IV, 5 **631.425.24.005—Stoeckeler, J. H.; Aamodt, E.** Use of tensiometers in regulating watering in forest nurseries. *Plant Physiol.* 15, 1940 (589-607).
- 631.425.24.005—Richards, L. A.** Soil moisture tensiometer materials and construction. *Soil Sci.* 53, 1942 (241-248).
- VII, 2 **631.425.24.005—Richards, L. A.; Fireman, M.** Pressure-plate apparatus for measuring moisture sorption and transmission by soils. *Soil Sci.* 56, 1943 (395-404).
- VI, 2 **631.425.24.005—Veihmeyer, F. J.; Edlefsen, N. E.; Hendrickson, A. H.** Use of tensiometers in measuring availability of water to plants. *Plant Physiol.* 18, 1943 (66-78).
- 631.425.25—Smolik, L.** The Nikolaev method for the determination of the hygroscopicity of soil. *Shorn. Masaryk. Akad. Práce* 12, 1938 (555-560). C.A. 34 (7508).
- IV, 6 **631.425.25—Sik, K.** Determination of the hygroscopicity of soil. *Kisérlet. Közlem.* 43, 1940 (50-52). C.A. 35 (4891).
- ✓ **631.425.3—Kazin, K. P.** Determination of carbon dioxide in soil air. *Dokl. Akad. S.-Kh. Nauk* No. 12, 1940 (23-25).
- ✓ **631.425.3—Gorbulov, N. I.; Shkol'nik, R. Ya.; Morozova, T. M.** Methods for determining carbon dioxide in soil air. *Pedology* No. 2, 1941 (43-62). [R.g.]
- 631.425.3.005—Kunze, A.** A simplified air-pyrometer. *Bodenk. PflErnähr.* 28, 1942 (383-385). [G.]
- V, 1 **631.425.31—Dolarenko, A. G.** Differential porosity as an index to soil structure. *Sotsial. Zern. Khoz.* No. 1, 1941 (54-72). [R.]
- V, 1 **631.425.31—Leamer, R. W.; Shaw, B.** A simple apparatus for measuring noncapillary porosity on an extensive scale. *J. Amer. Soc. Agron.* 33, 1941 (1003-1008).
- IV, 6 **631.425.31—Swanson, C. L. W.; Peterson, J. B.** Differences in the micro-structure of profiles of the Marshall and the Shelby silt loam. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (297-303).
- V, 4 **631.425.31—Vlasoff, P. I.** Volume change and pore space of saturated and dry soil clods in relation to different soil types and land utilization. *Soil Sci.* 53, 1942 (187-193).
- IV, 1 **631.425.4—Makarova, A. F.** Comparative evaluation of methods for the preparation of soils for micro-aggregate analysis. *Pedology* No. 5, 1939 (105-125). [R.e.]
- 631.425.4—Downes, R. G.** The measurement of soil structure. *Proc. Roy. Soc. Victoria* 52, 1940 (1-20). C.A. 36 (1128).
- V, 3 **631.425.4—Glotova, T.** On methods of studying the aggregate composition of soil. *Pedology* No. 1, 1941 (68-71). [R.]
- 631.425.4—Moore, R. E.; Kong, R. W.** A new sedimentation tube for analyzing water-stable soil aggregates. *Soil Sci.* 51, 1941 (181-187).
- 631.425.4—Snoep, W.** Comments on the technique of physical methods for soil investigations. *Bergcultures* 15, 1941 (713-721). [Du.]
- VI, 4 **631.425.4—Baturin, V. P.** A new method for studying sandy silt sediments (granulo-morphological analysis). *C.R. Acad. Sci. (U.S.S.R.)* 27, 1942 (66-68). [E.]

# FERTILIZERS AND GENERAL AGRONOMY

- 631.425.4—Russell, M. B. Pore-size distribution as a measure of soil structure. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (108-112). V, 6
- 631.425.4—Bablot, L. E. Granulometric analysis of soils. *Ingenieria Mex.* 17, 1943 (252-269). C.A. 38 (1059).
- 631.425.4—Chepil, W. S.; Bisal, F. A rotary sieve method for determining the size distribution of clods. *Soil Sci.* 56, 1943 (95-100).
- 631.425.4 : 535.82—Peterson, J. B. A microscopic method for determining the water-stable aggregates in soils. *Soil Sci.* 50, 1940 (331-338).
- 631.425.4 : 535.82—Kublena, W. The thin-layer technique in soil investigations. *ForschDienst. Sonderh.* 16, 1942 (91-96). C.A. 37 (3541).
- 631.425.5—Godlin, M. M.; Ekkel, B. E. Methods of preparing soils for mechanical analyses. *Trudi Inst. Sotsial. Zemlerob.* 4, 1939 (305-325). *Pedology* No. 6, 1940 (105). IV, 2
- 631.425.5—Shaw, T. M.; Miles, E. F. Modification of the pipette method of mechanical analysis. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (368-369).
- 631.425.5—Tyner, E. H. The use of sodium metaphosphate for dispersion of soils for mechanical analysis. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (106-113). IV, 1
- 631.425.5—Whiteside, E. P.; Marshall, C. E. Studies in the degree of dispersion of the clays: III. The two layer method as applied to the Sharples supercentrifuge. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (100-103). IV, 1
- 631.425.5—Winkel, R. Determination of the grain size and its distribution in cohesive soils. *Bautech.* 18, 1940 (642-643). C.A. 37 (2113). VII, 3
- 631.425.5—Hellman, N. N.; McKelvey, V. E. A hydrometer-pipet method for mechanical analysis. *J. Sediment. Petrol.* 11, 1941 (3-9). C.A. 35 (4245). IV, 6
- 631.425.5—Jackson, M. L. Clay and colloid content determination of soils using a rapid photoelectric procedure. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (54-60). IV, 6
- 631.425.5—Meurice, R. The importance of a preliminary dispersion of colloids before mechanical soil analysis by sedimentation. *Ann. Chim. Anal.* 23, 1941 (285-286). C.A. 37 (4842). VII, 2
- 631.425.5—Pecorá, E. J.; Abitbol, J. Mechanical analysis of soils by the method of Bouyoucos, analytical curves and their correction with graphs. *Agronomía B. Aires* 30, 1941 (142-160). *Biol. Abs.* 16 (724).
- 631.425.5—Puri, A. N.; Puri, B. R. Ultra-mechanical analysis of soils. *J. Agric. Sci.* 31, 1941 (171-177). IV, 4
- 631.425.5—Behr, G. The pretreatment of soils in determining the distribution of particle size. *J. Landw.* 89, 1942 (48-63). C.A. 38 (3403). VII, 4
- 631.425.5—Berg, S. The submerged-weight method of determining size distribution. *Ber. Deut. Keram. Ges.* 23, 1942 (271-299). C.A. 37 (5634). VII, 1
- 631.425.5—King, R. M. Critical analysis of Stokes' law as a basis for determination of particle size of clays and non-plastic materials. *Bull. Amer. Ceram. Soc.* 21, 1942 (258-260). B.C.A.B. I, 1943 (158).



# BIBLIOGRAPHY OF SOIL SCIENCE

- VI, 4 631.425.5—Codoni, M. R. Density of soil suspensions and the use of densimeters for mechanical analysis. *Soil Sci.* 56, 1943 (7-18).
- VII, 2 631.425.5—Codoni, M. R. The densimeter method of mechanical analysis. *Soil Sci.* 56, 1943 (423-431).
- VI, 4 631.425.5—Gollán, J., Jr.; Codoni, M. R. The application of controlled dispersion to the textural grading of soils. *Soil Sci.* 55, 1943 (417-426).
- VII, 4 631.425.5—Astapov, S. V. Experimental study of the settling velocity of elementary particles and micro-aggregates in still water. *Pedology* No. 2-3, 1944 (87-100). [R.e.]
- VI, 4 631.425.5 : 535.82—Fairs, G. L. The use of the microscope in particle size analysis. *Chem. Indust.* 62, 1943 (374-378).
- IV, 1 631.425.5 : 549—Batson, D. M.; Truog, E. Further improvements in the mineralogical subdivision of fine clay by means of heavy liquid specific gravity separations. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (104-105).
- VII, 2 631.425.5 : 549—Hutton, C. O. Some features of heavy mineral separations. *Trans. Roy. Soc. N.Z.* 73, 1943 (76-83).
- V, 2 631.425.5 : 631.411.2—Ryzhov, S. N.; Shevchuk, N. S. The use of sodium oxalate in the pretreatment of carbonate soils for mechanical analysis. *Soil Fert. Problems Cotton Res. Inst. Tashkent* 1939 (119-123). *Pedology* No. 11, 1940 (102). C.A. 36 (5301).
- 631.425.5 : 631.414.2—Yusupova, S. M. Application of the Tiulin method of fractional peptization of soils in the investigation of clays. *Probl. Sovet. Pochved.* No. 4, 1939 (125-131). C.A. 36 (5299).
- IV, 6 631.425.5 : 631.414.2—Tiulin, A. F. A method for the group analysis of the clay fraction of non-calcareous soils without using acid or alkali. *Khim. Sotsial. Zemled.* No. 7, 1940 (69-71). [R.]
- V, 3 631.425.5 : 631.414.2—Smolina, L. B.; Nagornala, V. Determination of the group composition of colloids in some Pamir soils. *Pedology* No. 1, 1941 (61-64). [R.]
- VI, 4 631.425.5 : 631.414.2—Russell, E. W. The subdivision of the clay fraction in mechanical analysis. *J. Agric. Sci.* 33, 1943 (147-154).
- VII, 2 631.425.5 : 631.414.2—Tiulin, A. F. Methods of peptization analysis in connexion with the laws governing the physical and chemical properties of soils. *Pedology* No. 4-5, 1943 (3-16). [R.e.]
- VII, 3 631.425.5 : 631.414.2—Atkinson, H. J.; Turner, R. C. Soil colloids: II. Separation by peptization. *Soil Sci.* 57, 1944 (233-240).
- VII, 3 631.425.5 : 631.414.2—Hosking, J. S. The use of the Sharples supercentrifuge in the fractionation of colloidal material. *Aust. J. Coun. Sci. Indust. Res.* 17, 1944 (23-29).
- IV, 1 631.425.5.005—Bond, F. C. Sedimentation balance for measurement of size distribution of fine materials. *Amer. Inst. Min. Engrs. Tech. Pub.* 1129, 1939, pp. 11. B.C.A. 59 (647).
- 631.425.5.005—Botvay, K. A new self-registering sedimentation balance. *Erdész. Kisér.* 42, 1940 (106-140). [H.]
- 631.425.5.005—Botvay, K. A new self-registering sedimentation balance. II. *Erdész. Kisér.* 42, 1941 (145-170). [H.g.]
- 631.425.5.005—Smith, R. A shaking machine for the separation of sand fractions. *J. Aust. Inst. Agric. Sci.* 6, 1940 (197-198).

## FERTILIZERS AND GENERAL AGRONOMY

- 631.425.5.005—Starodubtsev, S. Ya.** Gravimetric method of sedimentation analysis. *Zavod. Lab.* 9, 1940 (758-760). C.A. 35 (43). IV, 3
- ✓ **631.425.6—Palimann, H.; Eichenberger, E.; Hasler, A.** Principles of a new method of temperature measurement in ecological or soil investigations. *Soil Res.* 7, 1940 (55-71). C.A. 34 (7507). [G.] IV, 2
- 631.425.6.005—Romanovsky, V.** Apparatus for determination of thermal conductivity of soils. *C.R.* 213, 1941 (584-586). B.C.A.B. III, 1942 (209). VI, 1

## 631.427 BIOLOGICAL ANALYSIS

- 631.427.2—Garassini L. A.** Direct observation of the microflora of the soil by the Rossi-Cholodny-Conn method. *Rev. Fac. Agron. La Plata* 24 (1939), 1940 (45-56). R.A.M. 20 (224). [Sp.e.]
- 631.427.2—Harmsen, G. W.** The influence of the method of sampling on the accuracy of the determination of bacterial numbers in the soil. *Antonie van Leeuwenhoek* 6, 1940 (178-199). Biol. Abs. 15 (1750). V, 1
- 631.427.2—James, N.** The errors of the plate method. *Proc. Third Int. Cong. Microbiol.* (1939), 1940 (699). *Third Int. Cong. Microbiol. Abs. Commun.* 1939 (310).
- 631.427.2—West, P. M.; Lochhead, A. G.** The nutritional requirements of soil bacteria—a basis for determining the bacterial equilibrium of soils. *Soil Sci.* 50, 1940 (409-420).
- 631.427.2—Gillarov, M. S.** Methods of quantitative enumeration of soil fauna. *Pedology* No. 4, 1941 (48-77). [R.g.]
- 631.427.2—James, N.; Sutherland, M. L.** A place for the plate count method as applied to soil. *Iowa St. Coll. J. Sci.* 15, 1941 (375-383). E.S.R. 86 (158).
- 631.427.2—Blair, I. D.** Studies on the growth in soil and the parasitic action of certain *Rhizoctonia Solani* isolates from wheat. *Canad. J. Res.* 20C, 1942 (174-185). V, 3
- 631.427.2—James, N.; Sutherland, M. L.** Numbers of bacteria developing on plates in relation to soil environment. *Canad. J. Res.* 21C, 1943 (191-197).
- 631.427.2—Newman, A. S.** Evaluation of microbial activity in soil profiles by carbon dioxide evolution and thermal procedures. *Iowa St. Coll. J. Sci.* 18, 1943 (74-76).
- 631.427.2—Rouschal, C.; Strugger, S.** A new method for observation of micro-organisms in the soil *in vivo*. *Naturwissenschaften* 31, 1943 (300). C.A. 38 (201). VII, 3
- 631.427.2 : 576.809.6—Bottcher, E. J.; Hofer, A. W.** Semi-quantitative determinations of bacteriophage in soils. *J. Bact.* 45, 1943 (407-408). Biol. Abs. 17 (1937).
- 631.427.2 : 631.461.52—Blistry, N. F.** Isolation of nodule bacteria from the soil by the method of chemotaxis. *Mikrobiologia* 10, 1941 (247-248). Biol. Abs. 16 (1852). [R.e.] VI, 1
- 631.427.3/4—Scurti, F.** Determination of fertility in arable soils. *Ital. Agric.* 77, 1940 (151-159). [I.] VI, 1
- 631.427.3/4—Segeberg, H.** New methods for determining the manurial requirements of agricultural soils. *Chem.-Ztg.* 64, 1940 (305-307). Zbl. Bakt. 11, 103 (365). [G.]

# BIBLIOGRAPHY OF SOIL SCIENCE

- 631.427.3/4—Niklas, H.; Torsel, O.** Results of a comparison of the following, as tests of phosphate requirements, on a total of 1264 soils: Mitscherlich's pot technique, Neubauer's seedling method, and the lactate and aspergillus methods. *Bodenk. PflErnähr.* 24, 1941 (310-314). [G.]
- 631.427.3—Itallie, T. B. van.** Is Neubauer's seedling method suitable for analysis of Dutch clay and loam soils? *Landbouwk. Tijdschr.* 51, 1939 (679-701). C.A. 36 (2661).
- VI, 2 **631.427.3—Gebhard, H.** The influence of the number of plants in pots on the yield and phosphate and potash assimilation. *Bodenk. PflErnähr.* 20, 1940 (284-306). C.A. 36 (4953). [G.]
- 631.427.3—Koontz, C. R.; Goldfain, G.** Petiole analysis as an indication of fertilizer requirements of sugar beets. *Proc. Amer. Soc. Sug. Beet Tech.* 1940 (290-297). B.C.A.B. III, 1942 (127).
- VI, 1 **631.427.3—Lazursky, A. V.** Determining the requirements of plants for nitrogen and phosphorus. *Dokl. Akad. S.-Kh. Nauk* No. 6, 1940 (31-35). C.A. 36 (6728).
- 631.427.3—Reinhold, J.** Physiological analysis for nutrients. *Bodenk. PflErnähr.* 17, 1940 (101-109). C.A. 35 (255).
- IV, 3 **631.427.3—Spurway, C. H.** Electro-foliar diagnosis. *Science* 92, 1940 (489-490).
- VI, 3 **631.427.3—Burkhart, L.** Foliar diagnosis and plant nutrition. *Proc. Assoc. S. Agric. Workers* 42, 1941 (207-208). C.A. 35 (7620).
- IV, 6 **631.427.3—Chapman, G. W.** Leaf analysis and plant nutrition. *Soil Sci.* 52, 1941 (63-81).
- IV, 6 **631.427.3—Gärtner, M.** Graphical evaluation of pot experiments performed according to the Mitscherlich procedure for determining manurial requirements. *Bodenk. PflErnähr.* 23, 1941 (105-114). [G.]
- 631.427.3—Gärtner, M.** Graphical presentation of the law of action of growth factors of plants. *Bodenk. PflErnähr.* 26, 1941 (72-83). [G.]
- 631.427.3—Moser, F.** Plant composition as an index of soil fertility. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (147-151).
- 631.427.3—Thomas, W.; Mack, W. B.** Foliar diagnosis in relation to soil heterogeneity. *Soil Sci.* 52, 1941 (455-468).
- 631.427.3—Thomas, W.; Mack, W. B.** Foliar diagnosis study of climatic influences on the nutrition of spring and fall grown greenhouse tomatoes. *Plant Physiol.* 16, 1941 (117-144).
- V, 5 **631.427.3—Godbout, G.; Scott, A.** The pilot indicator. *Bonne Terre* 23, No. 1-2, 1942 (1-24). Biol. Abs. 16 (1227).
- VI, 1 **631.427.3—McGeorge, W. T.** Studies on plant food availability in alkaline-calcareous soils: seedling tests and soil analysis. *Ariz. Agric. Expt. Sta. Tech. Bull.* 94, 1942 (377-418).
- 631.427.3—Monthly Bulletin of Agricultural Science and Practice.** On a method for the study of the mineral intake of plants. Estimation of soil reserves. *Mo. Bull. Agric. Sci. Pract.* 33, 1942 (42CT-42IT). Hort. Abs. 14 (1).
- 631.427.3—Veale, P. T.** Nutritional information from plant tissue tests. *Better Crops with Plant Food* 26, No. 5, 1942 (10-13, 42-45). C.A. 36 (5303).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.427.3—Goodall, D. W.** Studies in the diagnosis of mineral deficiency. I. The distribution of certain cations in apple foliage in early autumn. *J. Pomol.* 20, 1943 (136-143).
- 631.427.3—Kertscher, F.** The limits of applicability of plant-nutrient determinations in soils by means of the seedling test method. *Bodenk. PflErnähr.* 29, 1943 (291-300). [G.]
- 631.427.3—Lundegårdh, H.** Leaf analysis as a guide to soil fertility. *Nature* 151, 1943 (310-311).
- 631.427.3—Roach, W. A.** The diagnosis of mineral deficiency by plant analysis and plant injection. *Occas. Pub. Sci. Hort.* 4, 1943 (40-41). *Hort. Abs.* 13 (101).
- 631.427.3—Scarseth, G. D.** Plant-tissue testing in diagnosis of the nutritional status of growing plants. *Soil Sci.* 55, 1943 (113-120).
- 631.427.3—Scarseth, G. D.** Methods of diagnosing plant nutrient needs. *Amer. Fert.* 98, No. 12, 1943 (5-8, 22, 24, 26).
- 631.427.3—Thomas, W.; Mack, W. B.** Foliar diagnosis in relation to plant nutrition under different conditions of weather and soil reaction. *Soil Sci.* 56, 1943 (197-212). VII, 1
- 631.427.3—Thomas, W.; Mack, W. B.; Cotton, R. H.** Leaf analysis as a means of determining the fertilizer requirement of crops. *Amer. Fert.* 98, No. 4, 1943 (5-7, 26, 28). VI, 3
- 631.427.3—Ulrich, A.** Plant analysis as a diagnostic procedure. *Soil Sci.* 55, 1943 (101-112).
- 631.427.3—Atkinson, H. J.; Patry, L. M.; Wright, L. E.** Plant tissue testing. *Sci. Agric.* 24, 1944 (437-442).
- 631.427.3 : 631.416.1—Atkinson, H. J.** Invertase in plants as a measure of available soil nitrogen. *Sci. Agric.* 21, 1941 (508-514). IV, 4
- 631.427.3 : 631.416.2—Hoover, C. D.; Norman, A. G.** Applicability of the Mitscherlich method to the determination of available phosphate in some Iowa soils. *Soil Sci.* 53, 1942 (329-340). V, 5
- 631.427.3 : 631.416.327—Schofield, C. S.; Wilcox, L. V.; Blair, G. Y.** Boron absorption by sunflower seedlings. *J. Agric. Res.* 61, 1940 (41-56). IV, 2
- 631.427.3 : 631.416.327—Colwell, W. E.** A biological method for determining the relative boron contents of soils. *Soil Sci.* 56, 1943 (71-94). VI, 4
- 631.427.3 : 631.416.7—Knutson, K.** Critical testing of the Neubauer method for the determination of lime in the hydrochloric acid extract of soil. *Svensk Kem. Tidskr.* 54, 1942 (83-88). C.A. 38 (2780).
- 631.427.3 : 631.421—Neubauer, H.; Neubauer, E.** Square-metre field experiments as tests of the usefulness of the seedling method. *Bodenk. PflErnähr.* 21/22, 1940 (327-340). *ForschDienst.* 11 (58). [G.] IV, 6
- 631.427.3 : 631.422—Collins, E. R.; Burkhart, L.; Morris, H. D.** Correlation of soil and tissue tests as an index of nutrient levels for peanut production. *Proc. Assoc. S. Agric. Workers* 42, 1941 (54-55). C.A. 35 (7620). VI, 3
- 631.427.3 : 631.422—Scarseth, G. D.** Soil and plant-tissue tests as aids in determining fertilizer needs. *Better Crops with Plant Food* 25, No. 3, 1941 (9-11, 43-47). IV, 6

# BIBLIOGRAPHY OF SOIL SCIENCE

- VI, 4     **631.427.3 : 631.422**—Scarseth, G. D. Value and limitations of methods of diagnosing plant nutrient needs. *Better Crops with Plant Food* 27, No. 5, 1943 (11-15, 48-51).
- VII, 4     **631.427.3 : 631.423.3**—Kivinen, E. The determination of the fertilizer requirement of soil. *Agrocol. Jukl.* No. 52, 1941, pp. 17. C.A. 38 (2436).
- V, 5     **631.427.3 : 631.423.3**—Olson, L. C. Laboratory data as an aid in interpreting the results of cotton and corn fertilizer experiments in Georgia. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (238-242).
- VII, 1     **631.427.3 : 631.423.3**—Ulrich, A. Potassium content of grape leaf petioles and blades contrasted with soil analyses as an indicator of the potassium status of the plant. *Proc. Amer. Soc. Hort. Sci.* 41, 1942 (204-212).
- 631.427.3 : 631.445.7**—Hardy, F.; Harper, A. S.; Cripps, E. G. Assessment of fertility of abnormal soils: (B) Ferruginous red soils (comparison of chemical tests with the Mitscherlich and other pot tests). *Trop. Agric. Trin.* 18, 1941 (238-243).
- VII, 2     **631.427.3 : 631.547.2**—Duchon, F. Biological factors causing fluctuations in the yield from soils. *Sborn. Csl. Akad. Zemd.* 16, 1941 (404-418). C.A. 37 (3214).
- VII, 4     **631.427.3 : 631.547.2**—Dijkveld Stol, J. J. "Crop formulation." *Landbouwk. Tijdschr.* 54, 1942 (726-738, 798-817). C.A. 38 (3771).
- VII, 4     **631.427.3 : 631.547.2**—Marquardt, E. A contribution to the law of yield. *Landw. Jahrb.* 92, 1942 (186-240). C.A. 38 (2782).
- 631.427.3 : 631.547.2**—Scheffer, F. The factor of the minimum in relation to yields of grain. *Bodenk. Pflernähr.* 27, 1942 (162-180). [G.]
- 631.427.3 : 631.547.2**—Willcox, O. W. Yield-depression effect of fertilizers and its measurement by the universal yield diagram. *J. Amer. Soc. Agron.* 36, 1944 (20-31).
- VII, 4     **631.427.3 : 631.547.2**—Willcox, O. W. Absolute values in fertilizer experiments. *J. Amer. Soc. Agron.* 36, 1944 (480-486).
- VI, 2     **631.427.3 : 631.67**—Thomas, W.; Mack, W. B.; Cotton, R. H. Foliar diagnosis in relation to irrigation. *Proc. Amer. Soc. Hort. Sci.* (1942) 40, 1942 (531-535).
- IV, 1     **631.427.4**—Chemiker-Zeltung. E. H. Reinau's thermo-kinetic method of soil investigation. *Chem.-Ztg.* 63, 1939 (63-65). [G.]
- IV, 4     **631.427.4**—Gerretsen, F. C.; Blumendal, N. An investigation on the usability of the Aspergillus method of determining phosphoric acid and potash in soil. *Versl. Rijkslandb.Proefsta. Groningen* 46A, 1940 (219-303). C.A. 35 (1563).
- 631.427.4**—Niklas, H.; Torsel, O. Soil investigation by means of *Aspergillus niger*. *Bodenk. Pflernähr.* 18, 1940 (79-107). C.A. 35 (251). [G.]
- 631.427.4**—Stöckill, A. The Sekera micro-manurial test. *Bodenk. Pflernähr.* 21/22, 1940 (287-315). [G.]
- V, 2     **631.427.4**—Herrmann, R. A critical examination of E. Reinau's thermo-kinetic method of soil investigation. *Bodenk. Pflernähr.* 25, 1941 (358-367). [G.]
- 631.427.4**—Nicol, H. Reinau test for soil fertility. *Chron. Bot.* 6, 1941 (252-253). Biol. Abs. 16 (221).

## FERTILIZERS AND GENERAL AGRONOMY

- 631.427.4—Sekera, F.** Micro-manurial experiments for the determination of nutrient content of soils and the effectiveness of fertilizers. *Phosphorsäure* 10, 1941 (229-246). *Zbl. Bakt.* II, 104 (231). V, 2
- 631.427.4—Gaw, H. Z.** The phosphorus and potash requirements of Kiating soils as determined by azotobacter plaque method. *Chin. J. Sci. Agric.* 1, No. 1, 1943 (36-38). [E.ch.]
- 631.427.4 : 631.416.2—Gerretsen, F. C.; Blumendal, N.** Determination of phosphate by *Aspergillus niger*. *Antonie van Leeuwenhoek* 6, 1940 (71-98). *Biol. Abs.* 14 (1597).
- 631.427.4 : 631.416.2—Halversen, W. V.; Hoge, W. G.** The azotobacter plaque test as applied to the determination of phosphate deficiency in Idaho soils. *J. Amer. Soc. Agron.* 34, 1942 (503-512). V, 5
- 631.427.4 : 631.416.8—Mulder, E. G.** On the use of micro-organisms in measuring deficiencies of copper, magnesium and molybdenum in soils. *Antonie van Leeuwenhoek* 6, 1940 (99-109). *Biol. Abs.* 14 (1598).
- 631.427.4 : 631.416.8—Niklas, H.; Tournel, O.** The detection of trace elements by means of *Aspergillus niger*. *Bodenk. PflErnähr.* 23, 1941 (357-360). [G.] V, 1
- 631.427.4 : 631.416.846—Smit, J.; Mulder, E. G.** Biological estimation of copper and magnesium in soils and plants. *Rec. Trav. Chim. Pays-Bas* 59, 1940 (623-628). C.A. 35 (5934).
- 631.427.4 : 631.416.846—Tournel, O.** Determination of the magnesium status of soils by means of Niklas's aspergillus method. *Bodenk. PflErnähr.* 24, 1941 (315-320). [G.] V, 1
- 631.427.4 : 631.416.856—Acock, A. M.** An examination of Mulder's rapid biological method for estimating the amount of available copper in soils. *Aust. J. Coun. Sci. Indust. Res.* 14, 1941 (288-300). V, 3
- 631.427.4 : 631.423.3—Várallyay, G.** The newer laboratory methods for evaluating the effects of manuring. *Bodenk. PflErnähr.* 23, 1941 (98-104). [G.] IV, 6
- 631.427.4 : 631.423.3—Gericke, S.; Pfarre, E.** Soil investigations and field trials. *Bodenk. PflErnähr.* 26, 1942 (180-194). [G.] V, 5
- 631.427.4 : 631.445.7—Gonggrijp, H.** Further information on the use of the Sekera method of examining tropical soils. *Arch. Rubbercult.* 24, 1940 (1-24). C.A. 35 (556). IV, 3

## 631.43 PHYSICAL PROPERTIES OF SOIL

- 631.43—Gardner, W.** Foundations of soil physics research. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (3-6). *Biol. Abs.* 15 (112). C.A. 35 (239).
- 631.43—Bodman, G. B.** Nomograms for rapid calculation of soil density, water content, and total porosity relationships. *J. Amer. Soc. Agron.* 34, 1942 (883-893).
- 631.43 : 539.41—Kachinsky, N. A.** Determination of the specific resistance of soil to ploughing by its resistance to deformation. *Pedology* No. 9, 1939 (15-48). [R.e.] IV, 1
- 631.43 : 539.41—Nekrasov, P. A.** The influence of mechanical composition and moisture on the resistance of soil to ploughing. *Pedology* No. 9, 1939 (49-65). [R.e.] IV, 1

## BIBLIOGRAPHY OF SOIL SCIENCE

- VII, 1 631.43: 631.416.324—McIntenry, J. R.; Rhoades, H. F. Influence of calcium carbonate content and exchangeable sodium-calcium ratio on consistency constants, residual shrinkage, moisture equivalent and hygroscopic coefficient of soils. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (42-47). *Biol. Abs.* 17 (2181). C.A. 37 (5539).

## FERTILIZERS AND GENERAL AGRONOMY

- 631.43 : 631.417** --Obenshain, S. S.; Gish, P. T. The effect of organic matter on the physical properties of Berks silt loam. *Comm. Fert.* 64, No. 6, 1942 (12, 13). C.A. 36 (6725).
- 631.43 : 631.51** --Khvorov, I. P.; Onikhova, K. Ya. Changes in the physical and chemical properties of virgin soils ploughed up for cereals and of cultivated soils lying fallow over a long period. *Trudy Kazakh. Inst. Zemled.* 1, 1939 (123-141). *Pedology* No. 7, 1940 (101). IV, 2
- 631.43 : 631.51** --Tlagny-Riadno, M. G. The influence of long cultivation and of a lucerne bed on the physico-chemical and microbiological properties of soil. *Pedology* No. 12, 1939 (46-64). [R.g.] IV, 2
- 631.43 : 631.85** --Nitzsch, W. von. The effect of phosphoric acid fertilizer on the structure of soil. *Phosphorsäure* 8-9, 1940 (422-435). C.A. 36 (5939). VI, 2
- 631.431** --Chapek, M. V.; Zhuravel, P. V. The swelling of soils due to sorption of water vapours. *Pedology* No. 11, 1939 (35-44). [R.e.] IV, 2
- 631.431** --Eriksson, S. Investigations on excess and deficit of swelling in various soils. *Bodenk. Pflernähr.* 28, 1942 (325-339). [G.] VI, 1
- 631.431** --Myers, H. E.; Smith, F. W. The swelling of quartz sand, soil colloid, and organic colloid. *Soil Sci.* 55, 1943 (253-255).
- 631.431 : 625.7 8** --Australian Journal of Science. Soil cement. *Aust. J. Sci.* 5, 1942 (95-97). VII, 1
- 631.431 : 625.7 8** --Porter, H. C. Roadway and runway soil mechanics data. Part I. Permanence of clay soil densification. *Bull. Agric. Mech. Coll. Texas*, 4th Ser. 13, No. 6, 1942, pp. 121. VI, 4
- 631.431 : 625.7 8** --Porter, H. C. Roadway and runway soil mechanics data. Part II. Density and total moisture content of clay soil. *Bull. Agric. Mech. Coll. Texas*, 4th Ser. 13, No. 7, 1942, pp. 27. VI, 4
- 631.431 : 625.7 8** --Porter, H. C. Roadway and runway soil mechanics data. Part III. Density and total density change of clay soils. Part IV. Density and total volumetric change of clay soils. *Bull. Agric. Mech. Coll. Texas*, 4th Ser. 13, No. 8, 1942, pp. 31. VI, 4
- 631.431 : 631.414.05** --Olmstead, L. B. The sedimentation volumes of soils from certain major soil groups. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (89-93). IV, 1
- 631.431 : 631.432.2** --Coile, T. S. Some physical properties of the B horizons of Piedmont soils. *Soil Sci.* 54, 1942 (101-103).

## 631.432 GROUND WATER. SOIL MOISTURE

- 631.432** --Guel, A. G. Desuction and the corrective rise of water in sands of Northern Cisaralia. *Pedology* No. 3, 1941 (89-95). [R.] V, 3
- 631.432** --Zunker, F. Estimation of the potential yield of ground water. *Bodenk. Pflernähr.* 30, 1943 (343-345). [G.] VII, 4
- 631.432 : 581.144.2** --Frankena, H. J.; Goedewaagen, M. A. J. Cylinder experiments on the influence of different water levels on the growth of grass in three soil types. *Versl. Rijkslandb-Proefsta. Groningen* No. 48A, 1942 (407-451). C.A. 38 (4363).



# BIBLIOGRAPHY OF SOIL SCIENCE

- 631.432 : 581.5**—Stearns, L. A.; MacCreary, D.; Daigh, F. C. Effect of ditching for mosquito control on the muskrat population of a Delaware tidewater marsh. *Del. Agric. Expt. Sta. Bull.* 225, 1940, pp. 55.
- V, 5 **631.432 : 631.414.1**—Valdhanathan, V. I.; Singh, C. A new phenomenon in the movement of the free water-level in a soil and its bearing on the measurement of water-table. *Proc. Indian Acad. Sci.* 15A, 1942 (264-280).
- VII, 3 **631.432 : 631.547.2**—Fikry, M. A. The effect of the ground-water table on the growth and yield of certain crops. *Bull. Un. Agric. Egypte* 41, 1943 (275-281). [F.]
- VII, 2 **631.432 : 631.62**—Childs, E. C. The water table, equipotentials, and streamlines in drained land. *Soil Sci.* 56, 1943 (317-330).
- VII, 1 **631.432 : 631.62**—Christiansen, J. E. Ground-water studies in relation to drainage. *Agric. Engng.* 24, 1943 (339-342).
- 631.432 : 631.67**—Savvinov, N. I.; Filippova, V. N. Ground-water levels in the Transvolga river valleys as affected by irrigation. *Trans. Dokuchaev Inst.* 24, 1940 (139-180). C.A. 36 (206). [R.e.]
- 631.432.2**—Andrianov, P. I. New methods of expressing the moisture and hydrophile properties of soils. *Pedology* No. 1, 1941 (40-49). [R.g.]
- 631.432.2**—Keso, L. Soil water. *Maat. Aikah.* 13, 1941 (173-190). C.A. 37 (6074).
- V, 2 **631.432.2**—Moore, R. E.; Goodwin, K. R. Hydraulic head measurements in soils with high water tables. *Agric. Engng.* 22, 1941 (263-264).
- 631.432.2**—Edlefsen, N. E.; Anderson, A. B. C. Thermodynamics of soil moisture. *Hilgardia* 15, 1943 (31-298). E.S.R. 89 (631).
- VI, 4 **631.432.2**—Winterkorn, H. F. The condition of water in porous systems. *Soil Sci.* 56, 1943 (109-115).
- 631.432.2**—Sekera, F. Soil fertility and water economy. The fundamental biological relations of water in agriculture. *Forsch.-Dienst.* 17, 1944 (61-70). [G.]
- IV, 2 **631.432.2 : 541.134.5**—Serdobol'sky, I. P. Effect of moisture on the oxidation-reduction processes in podzol soils. *Pedology* No. 7, 1940 (47-59). [R.]
- 631.432.2 : 541.144.7**—Schneider, G. W.; Childers, N. F. Influence of soil moisture on photosynthesis, respiration, and transpiration of apple leaves. *Plant Physiol.* 16, 1941 (565-583).
- 631.432.2 : 551.58**—Jacob, E. A contribution to the question of the water economy of soils in relation to meteorological conditions and yields. *ForschDienst.* 12, 1941 (138-153). [G.]
- VII, 3 **631.432.2 : 551.58**—Fina, A. L. de; Sordelli, D. A. A year (1937) of weekly determinations of soil and subsoil moisture at Buenos Aires. *Agronomia B. Aires* 31, 1942 (127-160). [Sp.]
- IV, 6 **631.432.2 : 581.144.2**—Lange, E. G. The effect of soil moisture and temperature on rooting in the stool bed of apple root stocks EM I-XVIII. *Gartenbauwiss.* 14, 1940 (1-76). Hort. Abs. 11 (102). [G.]
- IV, 4 **631.432.2 : 581.192**—Noggle, G. R. Effect of soil moisture on the composition of cereal plants. *Trans. Ill. St. Acad. Sci.* 33, No. 2, 1940 (79-80). C.A. 35 (2258).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.432.2: 581.192.6—Ayers, A. D.; Wadleigh, C. H.; Magistad, O. C.** The interrelationships of salt concentration and soil moisture with the growth of beans. *J. Amer. Soc. Agron.* 35, 1943 (796-810). VII, 1
- 631.432.2: 631.414.1—Dolgov, S. I.** Bound and capillary water in soils. *Pedology* No. 9-10, 1943 (24-29). [R.e.] VII, 3
- 631.432.2: 631.416—Kuhnke, A.** The water and nutrient content of soils. *ForschDienst. Sonderh.* 16, 1942 (97-105). C.A. 37 (4511). VII, 3
- 631.432.2: 631.416.13—Doneen, L. D.** Soil-moisture conditions in relation to growth and nutrition of the sugar beet. *Proc. Amer. Soc. Sug. Beet Tech.* 3, 1942 (54-62). C.A. 38 (2778). VII, 4
- 631.432.2: 631.417—Stone, J. T.; Garrison, C. S.** Relationship between organic matter content and moisture constants of soils. *Soil Sci.* 50, 1940 (253-256). IV, 1
- 631.432.2: 631.43—Smith, W. O.** The effect of soil physical conditions on moisture constants in the upper capillary range. *Soil Sci.* 58, 1944 (1-16). VII, 4
- 631.432.2: 631.432.4—Childs, E. C.** The use of soil moisture characteristics in soil studies. *Soil Sci.* 50, 1940 (239-252). IV, 1
- 631.432.2: 631.432.4—Midha, D. C.** A note on the negative pressure and moisture content of a Punjab soil. *Proc. Indian Acad. Sci.* 12A, 1940 (270-273). IV, 1
- 631.432.2: 631.432.4—Hendrickson, A. H.; Velhmyer, F. J.** Moisture distribution in soil in containers. *Plant Physiol.* 16, 1941 (821-826, 840). V, 2
- 631.432.2: 631.432.4—Woodruff, C. M.** Soil moisture and plant growth in relation to pF. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (36-41). IV, 6
- 631.432.2: 631.432.4—Childs, E. C.** Stability of clay soils. *Soil Sci.* 53, 1942 (79-92). V, 4
- 631.432.2: 631.432.4—Woodruff, C. M.** The movement and evaporation of soil water in relation to pF. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (120-125). V, 6
- 631.432.2: 631.432.4—Huberty, M. R.; Pillsbury, A. F.** Solid, liquid, gaseous phase relationships of soils on which avocado trees have declined. *Proc. Amer. Soc. Hort. Sci.* 42, 1943 (39-45). VII, 1
- 631.432.2: 631.435—Visser, W. C.** The heaviness of soils, lime content and soil structure. *Landbouwk. Tijdschr.* 53, 1941 (495-505). C.A. 38 (2149). VII, 4
- 631.432.2: 631.435—Wilcox, J. C.; Spillsbury, R. H.** Soil moisture studies. II. Some relationships between moisture measurements and mechanical analysis. *Sci. Agric.* 21, 1941 (459-472). IV, 4
- 631.432.2: 631.435—Williams, B. H.** The formation of moss peat beneath translucent pebbles in semi-arid regions of the Great Plains. *Science* 97, 1943 (441-442). VI, 4
- 631.432.2: 631.436.6—Anderson, A. B. C.; Fletcher, J. E.; Edlefsen, N. E.** Soil-moisture conditions and phenomena in frozen soils. *Trans. Amer. Geophys. Un.* 23, Pt. 2, 1942 (356-371). E.S.R. 88 (737). VI, 4
- 631.432.2: 631.544.7—Alalykin, V. V.** Soil temperature and moisture during mulching. *Trudy Gor'k. S.-Kh. Inst.* 2, 1939 (137-146). *Pedology* No. 11, 1940 (105). V, 1

# BIBLIOGRAPHY OF SOIL SCIENCE

- 631.432.2 : 631.544.7**—Turk, L. M.; Partridge, N. L. Effect of mulching materials on moisture loss from soils. *Proc. Amer. Soc. Hort. Sci.* (1940) 38, 1941 (59-62). Biol. Abs. 15 (2087).
- VI, 1 **631.432.2 : 631.544.7**—Glendening, G. E. Germination and emergence of some native grasses in relation to litter cover and soil moisture. *J. Amer. Soc. Agron.* 34, 1942 (797-804).
- IV, 6 **631.432.2 : 631.547.1**—Glendening, G. E. Development of seedlings of *Heteropogon contortus* as related to soil moisture and competition. *Bot. Gaz.* 102, 1941 (684-698).
- IV, 1 **631.432.2 : 631.58**—Ballenegger, R. Studies of the ecology of the peach-tree (5). VII. The moisture content of a clay soil during 1939. *Bull. Roy. Hung. Hort. Coll.* 1 (n.s.), 1940 (3-8). [Hgf.]
- IV, 1 **631.432.2 : 631.58**—Knoblauch, H. C.; Richards, S. J.; Lint, H. C. Soil moisture tension under various conservation practices. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (433-437).
- V, 4 **631.432.2 : 631.58**—Bregger, J. T.; Howie, J. B. Soil moisture variations in relation to conservation practices in the peach orchard (preliminary report). *Proc. Amer. Soc. Hort. Sci.* (1941) 39, 1941 (31-32). Biol. Abs. 16 (991).
- IV, 6 **631.432.2 : 631.58**—Dreibelbis, F. R.; Post, F. A. Studies on soil moisture relationships at the North Appalachian Experimental Watershed. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (377-385).
- 631.432.2 : 631.58**—Dreibelbis, F. R.; Post, F. A. An inventory of soil water relationships on woodland, pasture, and cultivated soils. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (462-473).
- VII, 1 **631.432.2 : 631.58**—Compton, L. L. Moisture conservation practices and the relationship of conserved water to crop yields. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (368-373). Biol. Abs. 17 (2170).
- 631.432.2 : 631.811.91**—Boguslawski, E. von. Investigations of the effect of the fine-earth content, density of planting and kind of plant on the uptake and utilization of soil water. *Hodnuk. Pflernahr.* 24, 1941 (265-303). [G.]
- IV, 6 **631.432.2 : 631.811.91**—Kramer, P. J. Soil moisture as a limiting factor for active absorption and root pressure. *Amer. J. Bot.* 28, 1941 (446-451).
- VII, 2 **631.432.2 : 634.94**—Timofeev, V. P. The influence of the composition of forest plantations on soil moisture. *Shorn. Pam. W. R. Williams*, 1942 (383-397). [R.]
- V, 1 **631.432.2 : 634.953.6**—Loginov, B. I.; Lebednikov, V. I. The effect of windbreaks of different density on soil moisture. *Soviet. Agron.* No. 10, 1940 (60-62). [R.]
- IV, 2 **631.432.21**—Chapek, M. V.; Shevchenko, A. E. Movement of vapour-like moisture in steppe chernozem soils. *Dokl. Akad. S.-Kh. Nauk* No. 17, 1940 (3-6). [R.]
- V, 5 **631.432.21**—Thorntwaite, C. W.; Holzman, B. Measurement of evaporation from land and water surfaces. *U.S.D.A. Tech. Bull.* 817, 1942, pp. 143.
- IV, 1 **631.432.21 : 551.58**—Penman, H. L. Meteorological and soil factors affecting evaporation from fallow soil. *Quart. J. Roy. Met. Soc.* 66, 1940 (401-410).
- V, 1 **631.432.21 : 551.58**—Penman, H. L. Laboratory experiments on evaporation from fallow soil. *J. Agric. Sci.* 31, 1941 (454-465).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.432.21 : 631.414.3—Gorbunov, N. I. The significance of the drying-out of soil for the desorption of absorbed cations. *Pedology* No. 8, 1939 (22-35). [R.e.] IV, 1
- 631.432.21 : 631.544.7—Russel, J. C. The effect of surface cover on soil moisture losses by evaporation. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (65-70). IV, 1
- 631.432.3—Richards, S. J.; Joffe, J. S. Percolation and sorption of water as they relate to infiltration in Collington sandy loam. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (94-99). IV, 1
- 631.432.3—Edlefsen, N. E.; Bodman, G. B. Field measurements of water movement through a silt loam soil. *J. Amer. Soc. Agron.* 33, 1941 (713-731).
- 631.432.3—Horton, R. E. An approach toward a physical interpretation of infiltration-capacity. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (399-417). IV, 6
- 631.432.3—Joffe, J. S. Lysimeter studies: the translocation of cations in the profile of a gray-brown podzolic soil. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (187-190). IV, 6
- 631.432.3—Kollasev, F. E. Moisture movement in the soil. *Dokl. Akad. S.-Kh. Nauk* No. 3, 1941 (45-48). [R.] V, 1
- 631.432.3—Richards, L. A. Concerning permeability units for soils. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (49-53).
- 631.432.3—Richards, L. A. Hydraulics of water in unsaturated soil. *Agric. Engng.* 22, 1941 (325-326). V, 2
- 631.432.3—Gardner, W. Permeability of soil. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (126-128).
- 631.432.3—Musgrave, G. W. Note on subsurface lateral movement of water applied to experimental areas. *J. Amer. Soc. Agron.* 34, 1942 (288-290).
- 631.432.3—Sreenivasan, A. Function of soil cracks. *Nature* 150, 1942 (409-410). VI, 4
- 631.432.3—Schofield, R. K. The role of moisture in soil mechanics. *Chem. Indust.* 62, 1943 (339-341). VI, 4
- 631.432.3 : 539.211—Duley, F. L.; Kelly, L. L. Surface condition of soil and time of application as related to intake of water. *U.S.D.A. Circ.* 608, 1941, pp. 30. V, 1
- 631.432.3 : 549—Urbain, P. The relative permeabilities of some clay rocks of the Paris basin. *C.R. Soc. Géol. Fr.* 1941 (106-107). C.A. 38 (2591). VII, 4
- 631.432.3 : 551.48—Beutner, E. L.; Gaebe, R. R.; Horton, R. E. Sprinkled plat run-off and infiltration experiments on Arizona desert soils. *SCS-TP* 38, 1940, pp. 30. E.S.R. 85 (164).
- 631.432.3 : 551.48—Shaposhnikov, A. P. Soil wash and run-off on the right bank of the middle Dnieper. *Soviet. Agron.* No. 10, 1940 (23-30). [R.] V, 1
- 631.432.3 : 551.48—Free, G. R.; Palmer, V. J. Interrelationship of infiltration, air movement, and pore size in graded silica sand. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (390-398).
- 631.432.3 : 551.48—Hursh, C. R.; Hoover, M. D. Soil profile characteristics pertinent to hydrologic studies in the southern Appalachians. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (414-422). V, 6

## BIBLIOGRAPHY OF SOIL SCIENCE

- VII, 1 **631.432.3 : 551.577**—Arend, J. L.; Horton, R. E. Some effects of rain intensity, erosion and sedimentation on infiltration capacity. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (82-89). C.A. 37 (5536).
- IV, 1 **631.432.3 : 553.72**—Fireman, M.; Bodman, C. B. The effect of saline irrigation water upon the permeability and base status of soils. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (71-77).
- IV, 2 **631.432.3 : 553.97**—Ivitsky, A. I. Studies on the delivery of water by peat. *Pedology* No. 11, 1939 (76-80). [R.]
- IV, 6 **631.432.3 : 553.97**—Baden, W. Does water percolation in moor soils increase or decrease with increasing decomposition of the peat? *Deut. LandeskZtg.* 9, 1940 (253). *ForschDienst.* 11 (54). [G.]
- V, 6 **631.432.3 : 553.97**—Brüne, F. Does water percolation in moor soil increase or decrease with increasing decomposition of the peat? *Deut. LandeskZtg.* 10, 1941 (133-135, 154-155). *Mitt. Moorswirtsch.* 6, No. 6-7, 1941 (25-27, 30-32). *ForschDienst.* 13 (38). [G.]
- VI, 1 **631.432.3 : 553.97**—Dittrich, J. Does water percolation in moor soils increase or decrease with increasing decomposition of the peat? *Deut. LandeskZtg.* 10, 1941 (251-252). *Mitt. Moorswirtsch.* 6, No. 12, 1941 (49-50). *ForschDienst.* 13 (86). [G.]
- VII, 3 **631.432.3 : 581.5**—Alderfer, R. B.; Bramble, W. C. The effect of plant succession on infiltration of rainfall into Gilpin soil in central Pennsylvania. *Pa. St. Forest Sch. Res. Pap.* 5, 1942, pp. 13. E.S.R. 90 (20).
- V, 4 **631.432.3 : 581.5**—Smith, H. L.; Leopold, L. B. Infiltration studies in the Pecos River watershed, New Mexico and Texas. *Soil Sci.* 53, 1942 (195-203).
- VII, 4 **631.432.3 : 581.5**—Burger, H. Vegetation, soil, and water content of the upper soil layers in the drainage basin of the Baye de Montreux. *J. Forest. Suisse* 94, 1943 (210-217, 235-240, 266-268). *Biol. Abs.* 18 (1300).
- VI, 2 **631.432.3 : 631.414.1**—Mallik, A. K. A preliminary study of the ascent of water through soil columns resting on a water table, loss of water by evaporation and associated movement of salts in the soil. *Indian J. Agric. Sci.* 12, 1942 (648-656).
- VII, 4 **631.432.3 : 631.414.1**—Christensen H. R. Permeability-capillarity curves for three prairie soils. *Soil Sci.* 57, 1944 (381-390).
- VII, 1 **631.432.3 : 631.414.324**—Smolik, L. Soda as an agent for reducing permeability to water. *Zemld. Arch.* 31, 1940 (504-509). *ForschDienst.* 15 (11).
- IV, 2 **631.432.3 : 631.414.324**—Sokolovsky, A. N. Utilization of the properties of soil colloids for technical purposes. *Pedology* No. 7, 1940 (3-21). [R.]
- VI, 4 **631.432.3 : 631.414.324**—Sokolovsky, A. N. A new method of counteracting soil permeability in the construction of reservoirs, etc. *Sel'Khozgiz, Moscow* 1941, pp. 56. [R.]
- VI, 4 **631.432.3 : 631.414.324**—Sokolovsky, A. N. Earthen "colloid coats" for fuel storage. *Rept. Acad. Sci. Ukrain. S.S.R. (Cl. Phys.-Chem. Math.)* No. 3-4, 1942 (47-54). [U.r.e.]
- 631.432.3 : 631.414.324**—Nayar, M. R.; Shukla, K. P. Influence of  $\text{Na}^+$ ,  $\text{NH}_4^+$  and  $\text{K}^+$  ions on the permeability of calcium soils. *Curr. Sci.* 12, 1943 (156-157).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.432.3 : 631.414.324—Nayar, M. R.; Shukla, K. P.** Permeability and hydrolysis of sodium soils. *Curr. Sci.* 12, 1943 (183-185).
- 631.432.3 : 631.414.324—Shukla, K. P.; Nayar, M. R.** An equation for the percolation of water in sodium-calcium soils. *Curr. Sci.* 12, 1943 (155-156).
- 631.432.3 : 631.417—Pillsbury, A. F.; Huberty, M. R.** Infiltration rates in a Yolo loam soil as affected by organic matter. *Proc. Amer. Soc. Hort. Sci.* (1941) 39, 1941 (16-18). *Biol. Abs.* 16(990). V, 4
- 631.432.3 : 631.42—Nelson, L. B.; Muckenhirn, R. J.** Further comments on use of buffer compartments to minimize subsurface lateral movement of water in field percolation experiments. *J. Amer. Soc. Agron.* 34, 1942 (679-682).
- 631.432.3 : 631.43—Kollasev, F. E.** The factors of water movement in soil. *Pedology* No. 2-3, 1944 (80-86). [R.] VII, 4
- 631.432.3 : 631.431—Browning, G. M.** Volume changes of soils in relation to their infiltration rates. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (23-27). IV, 1
- 631.432.3 : 631.431—Sreenivasan, P. S.** Influence of packing on movement of moisture through soil. *Curr. Sci.* 11, 1942 (287-288). B.C.A.B. III, 1943 (29). VI, 3
- 631.432.3 : 631.433.1—Lauritzen, C. W.; Stoltenberg, N. L.** Some factors which influence infiltration and its measurement in Houston black clay. *J. Amer. Soc. Agron.* 32, 1940 (853-866). C.A. 35 (1165). IV, 3
- 631.432.3 : 631.433.1—Lutz, J. F.; Leamer, R. W.** Pre-size distribution as related to the permeability of soils. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (28-31). IV, 1
- 631.432.3 : 631.433.1—Nelson, W. R.** The movement of water through soils in the pore space. *Ohio St. Univ. Abs. Doct. Diss.* 34, 1940 (467-476). *Biol. Abs.* 15 (2257). V, 2
- 631.432.3 : 631.433.1—Nelson, W. R.; Bayer, L. D.** Movement of water through soils in relation to the nature of the pores. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (69-76). IV, 6
- 631.432.3 : 631.433.1—Smith, R. M.; Browning, D. R.; Pohlman, G. G.** Laboratory percolation through undisturbed soil samples in relation to pore-size distribution. *Soil Sci.* 57, 1944 (197-213). VII, 3
- 631.432.3 : 631.436—Gustafsson, Y.** The influence of temperature on the permeability of soils to water. *LantbrHögsk. Ann.* 8, 1940 (425-456). C.A. 35 (2257). IV, 4
- 631.432.3 : 631.436.6—Augustine, M. T.** Infiltration runs on frozen ground. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (435).
- 631.432.3 : 631.445.72—Ramdas, L. A.; Mallik, A. K.** Studies on soils—Part I: The upward movement of water and salt solutions in the black cotton soil. *Proc. Indian Acad. Sci. A*, 16, 1942 (1-9). V, 6
- 631.432.3 : 631.445.72—Ramdas, L. K.; Mallik, A. K.** Studies on soils—Part II: A microscopic study of the behaviour of the black cotton soil in salt solutions. *Proc. Indian Acad. Sci. A*, 16, 1942 (16-22). V, 6
- 631.432.3 : 631.51—Kollasev, F. E.** Soil moisture movement in soil with alternately compacted layers. *Dokl. Akad. S.-Kh. Nauk* No. 4, 1941 (45-47). [R.] V, 1

# BIBLIOGRAPHY OF SOIL SCIENCE

- 631.432.3 : 631.58**—Hess, E. The effect of grass growth in catchment areas of mountain torrents. *Schweiz. Ztschr. Forstw.* 93, 1942 (97-101). Herb. Abs. 12 (223).
- Y, 3 **631.432.3 : 631.58**—Li, L. Y.; Anthony, R. D.; Merkle, F. G. Influence of orchard soil management upon the infiltration of water and some related physical characteristics of the soil. *Soil Sci.* 53, 1942 (65-74).
- VII, 4 **631.432.3 : 631.58**—Albrecht, W. A.; Sosne, J. Soil granulation and percolation rate as related to crops and manuring. *J. Amer. Soc. Agron.* 36, 1944 (646-648).
- V, 3 **631.432.3 : 631.589**—Arend, J. L. Infiltration rates of forest soils in the Missouri Ozarks as affected by woods burning and litter removal. *J. Forestry* 39, 1941 (726-728). Biol. Abs. 16 (229). For. Abs. 3 (198).
- V, 4 **631.432.3 : 634.9**—Letkovski, A. I. The change in the permeability to water of sands and sandy soils under the influence of forest fellings. *Lesnoe Khoz.* No. 6, 1941 (11-17). For. Abs. 3 (288). [R.]
- V, 3 **631.432.3 : 634.9**—Skorodumov, A. S. The influence of forest plantations on the water-absorption rate of structureless ploughed soils. *Lesnoe Khoz.* No. 3, 1941 (7-14). For. Abs. 3 (198). [R.]
- V, 5 **631.432.3 : 634.9**—Arend, J. L. Infiltration as affected by the forest floor. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (430-435).
- 631.432.3 : 634.9**—Diebold, C. H. An interpretation of certain infiltration values in forest areas obtained with the type F and type FA infiltrometers. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (423-429).
- VII, 3 **631.432.3 : 634.9**—Li, L. Y. The effect of some surface conditions of the soil on infiltration of water in woodland and in cultivated orchard. *N.Z. J. Sci. Tech.* 25A, 1943 (86-90).
- IV, 1 **631.432.3 : 634.989.84**—Johnson, W. M. Infiltration capacity of forest soil as influenced by litter. *J. Forestry* 38, 1940 (520). For. Abs. 2 (115).
- IV, 1 **631.432.4**—Duley, F. L. Surface factors affecting the rate of intake of water by soils. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (60-64).
- V, 1 **631.432.4**—Mahajan, L. D. Adsorption of moisture from moist air by soils. *Indian J. Phys.* 14, 1940 (441-450). B.C.A.B. III, 1941 (249).
- 631.432.4**—Russell, M. B. Soil moisture sorption curves for four Iowa soils. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (51-54).
- V, 2 **631.432.4**—Browning, G. M. Relation of field capacity to moisture equivalent in soils of West Virginia. *Soil Sci.* 52, 1941 (445-450).
- 631.432.4**—Fadullón, L. D. A study of "single value" properties of soils: maximum water-holding capacity and shrinkage. *Philipp. Agrist.* 29, 1941 (713-726). Biol. Abs. 15 (988).
- VI, 2 **631.432.4**—Andrianov, P. I.; Kulkova, K. S. The maximum molecular water-holding capacity of soils. *Pedology* No. 1, 1942 (30-32). [R.]
- 631.432.4**—Day, P. R. The moisture potential of soils. *Soil Sci.* 54, 1942 (391-400).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.432.4—Buehrer, T. F.; Rose, M. S.** Studies in soil structure VII, 3  
 —V. Bound water in normal and puddled soils. *Ariz. Agric. Expt. Sta. Tech. Bull.* 100, 1943 (155-218). C.A. 38 (1060). E.S.R. 90 (160).
- 631.432.4—Hursh, C. R.; Fletcher, P. W.** The soil profile as a natural reservoir. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (480-486). VII, 1  
*Biol. Abs.* 17 (2033).
- 631.432.4—Russell, M. B.** The utility of the energy concept of soil moisture. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (90-94). VII, 1  
 C.A. 37 (5536). *Biol. Abs.* 17 (2183).
- 631.432.4—Smith, R. M.; Browning, D. R.** Persistent water-unsaturation of natural soil in relation to various soil and plant factors. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (114-119). C.A. 37 (5536). *Biol. Abs.* 17 (1961). VII, 1
- 631.432.4—Colman, E. A.** The dependence of field capacity upon the depth of wetting of field soils. *Soil Sci.* 58, 1944 (43-50). VII, 4
- 631.432.4 : 532.712—Bodman, G. B.; Day, P. R.** Freezing points of a group of California soils and their extracted clays. *Soil Sci.* 55, 1943 (225-246). VI, 3
- 631.432.4 : 536.666—Andrianov, P. I.** Heat of wetting and hygroscopicity of soils. *Kolloid. Zh.* 6, 1940 (883-888). B.C.A.B. III, 1942 (42). V, 4
- 631.432.4 : 536.666—Andrianov, P. I.** Sorption potential and hydrophilicity of soils. *Kolloid. Zh.* 6, 1940 (695-700). B.C.A.B. III, 1942 (41). V, 4
- 631.432.4 : 549—Joshi, R. H.; Joshi, K. G.** The water of constitution of certain typical soils of the Central Provinces, and its bearing on the parent rock material from which the soils are formed. *Nagpur Univ. J. No. 5*, 1939 (89-93). C.A. 35 (2655). IV, 4
- 631.432.4 : 549—Zuev, L. A.; Gapon, E. V.** Adsorption of water vapour by aluminosilicates. *Pedology* No. 8, 1943 (13-19). [R.e.] VII, 3
- 631.432.4 : 551.574—Dolgov, S. I.; Preobrazhenskaia, M. V.** Condensation of atmospheric moisture in the soil. *Probl. Sotet. Pochvoed.* 9, 1939 (79-91). *Pedology* No. 11, 1940 (103). V, 2
- 631.432.4 : 553.97—Pokrovsky, G. I.; Sinel'shchikov, S. I.** The question of bound water in peat. *Pedology* No. 12, 1939 (64-75). [R.g.] IV, 2
- 631.432.4 : 581.5—Colvin, W. S.; Eisenmenger, W. S.** Relationships of natural vegetation to the water-holding capacity of the soils of New England. *Soil Sci.* 55, 1943 (433-446). VI, 4
- 631.432.4 : 631.425.22—Grabovsky, I. S.** On soil hygroscopicity and the possibility of determining soil moisture without the aid of a drying oven. *Pedology* No. 9, 1939 (152-169). [R.] IV, 2
- 631.432.4 : 631.432—Richards, L. A.** Uptake and retention of water by soil as determined by distance to a water table. *J. Amer. Soc. Agron.* 33, 1941 (778-786). V, 1
- 631.432.4 : 631.432.5—Sokolov, S. I.** Molecular water-holding capacity, hygroscopicity and mechanical composition of soil and their inter-relation. *Probl. Sotet. Pochvoed.* 7, 1939 (163-175). *Pedology* No. 11, 1940 (105). V, 2
- 631.432.4 : 631.432.5—Andrianov, P. I.** Hygroscopic humidity and field absorption of water. *Kolloid. Zh.* 6, 1940 (847-852). B.C.A.B. III, 1942 (42).



# BIBLIOGRAPHY OF SOIL SCIENCE

- IV, 2    **631.432.4 : 631.434**—Gor'kova, I. M. Rôle of hydration water in the formation of bonds between clay particles. *Pedology* No. 9, 1939 (65-83). [R.]
- V, 4    **631.432.4 : 631.434**—Jamison, V. C. Structure of a Dunkirk silty clay loam in relation to pF moisture measurements. *J. Amer. Soc. Agron.* 34, 1942 (307-321).
- IV, 4    **631.432.4 : 631.44**—Wilcox, J. C.; Spilsbury, R. H. Soil moisture studies. III. An application of soil moisture measurements to soils classification. *Sci. Agric.* 21, 1941 (473-478).
- VI, 3    **631.432.4 : 632.7**—Evans, A. C. Value of the pF scale of soil moisture for expressing the soil moisture relations of wireworms. *Nature* 152, 1943 (21-22).
- VI, 1    **631.432.5 : 631.414.2**—Hutcheon, W. L. The relation of clay and organic matter to soil moisture equilibrium points. *Sci. Agric.* 23, 1942 (4-16).

## 631.433 SOIL AIR

- VII, 2    **631.433**—Schmalfuss, K. Soil respiration. *Bodenk. PflErnähr.* 21/22, 1940 (442-454). C.A. 37 (6388).
- VII, 2    **631.433**—Whitney, J. B., Jr. Effects of the composition of the soil atmosphere on the absorption of water by plants. *Ohio St. Univ. Abs. Doct. Diss.* 38, 1942 (97-103). *Biol. Abs.* 18 (180).
- V, 3    **631.433 : 525.5**—Boynton, D. Soils in relation to fruit-growing in New York.—XV. Seasonal and soil influences on oxygen and carbon-dioxide levels of New York orchard soils. *Cornell Agric. Expt. Sta. Bull.* 763, 1941, pp. 43. E.S.R. 86 (297).
- VII, 3    **631.433 : 525.5**—Boynton, D.; Compton, O. C. Normal seasonal changes of oxygen and carbon dioxide percentages in gas from the larger pores of three orchard subsoils. *Soil Sci.* 57, 1944 (107-117).
- VII, 1    **631.433 : 581.144.2**—Boynton, D.; Compton, O. C. Effect of oxygen pressure in aerated nutrient solution on production of new roots and on growth of roots and tops by fruit trees. *Proc. Amer. Soc. Hort. Sci.* 42, 1943 (53-58).
- V, 4    **631.433 : 631.414.3**—Alten, F.; Loofmann, H. Adsorption of air by soils and soil components and its influence on the determination of pore volume and of the specific gravity of arable soils by means of the air-pressure pycnometer. *Bodenk. PflErnähr.* 26, 1941 (1-13). [G.]
- V, 3    **631.433 : 631.432.2**—Bollen, W. B. Soil respiration studies on the decomposition of native organic matter. *Iowa St. Coll. J. Sci.* 15, 1941 (353-374). E.S.R. 86 (159).
- VII, 1    **631.433 : 631.432.2**—Furr, J. R.; Aldrich, W. W. Oxygen and carbon-dioxide changes in the soil atmosphere of an irrigated date garden on calcareous very fine sandy loam soil. *Proc. Amer. Soc. Hort. Sci.* 42, 1943 (46-52).
- VI, 4    **631.433 : 631.547.2**—Childs, W. H. Photosynthesis, transpiration, and growth of apples as influenced by various concentrations of oxygen and carbon dioxide in the soil atmosphere. *Proc. Amer. Soc. Hort. Sci.* (1940) 38, 1941 (179-180). B.C.A.A. III, 1943 (612).
- V, 4    **631.433 : 631.547.2**—Gilbert, S. G.; Shive, J. W. The significance of oxygen in nutrient substrates for plants: I. The oxygen requirements. *Soil Sci.* 53, 1942 (143-152).

## FERTILIZERS AND GENERAL AGRONOMY

- 631.433.1—Vine, H.; Thompson, H. A.; Hardy, F.** Studies on aeration of cacao soils in Trinidad. Part III. Gaseous diffusion in certain cacao soil-types in Trinidad. *Trop. Agric. Trin.* 20, 1943 (13-24). VI, 2
- 631.433.1 : 581.144.2—Heinicke, A. J.** The physiology of trees with special reference to their food supply. *Natl. Shade Tree Conf. Proc.* 15, 1939 (26-38). Hort. Abs. 13 (85). VII, 1
- 631.433.1 : 581.144.2—Knight, A. T.** The influence of porosity of some orchard soils upon root behavior. *Proc. Amer. Soc. Hort. Sci.* (1942) 40, 1942 (23-26). VII, 1
- ✓ **631.433.1 : 620.19—Vine, H.** Studies on aeration of cacao soils in Trinidad (IV). Corrosion of iron as a measure of soil aeration. *Trop. Agric. Trin.* 20, 1943 (51-56). VI, 3
- 631.433.1 : 631.431—Czeratzki, W.** The effect of colloidal shrinkage on the porosity of soil. *Forsch.Dienst.* 11, 1941 (15-21). [G.] IV, 5
- 631.433.1 : 631.432.3—Baver, L. D.** Soil-porosity in relation to gaseous- and water-movement. *Trans. Amer. Geophys. Un.* 21, 1940 (414-433). C.A. 35 (2656). IV, 4
- 631.433.1 : 631.547.2—Joshi, K. G.; Vaidya, V. G.; Ingle, P. M.** Effect of ill-drained subsoil on growth of cotton and groundnut. *Curr. Sci.* 11, 1942 (335-336). B.C.A.B. III, 1943 (47). VI, 3
- 631.433.2—Ishibashi, M.** Chemical studies on clay soil under water. (Part II). *J. Agric. Chem. Soc. Japan* 17, 1941 (67-70). [J.]

## 631.434 SOIL STRUCTURE

- 631.434—Vilensky, D. G.** Studies on the process of soil aggregation. *Pedology* No. 8, 1940 (28-37). [R.] IV, 3
- 631.434—Nikiforoff, C. C.** Morphological classification of soil structure. *Soil Sci.* 52, 1941 (193-211). V, 1
- 631.434—Nikolsky, N. N.** The building-up of soil aggregates. *Sborn. Pam. W. R. Williams*, 1942 (377-382). [R.] VII, 2
- 631.434—Sekera, F.; Brunner, A.** Contributions to the methods of investigating tilth. *Bodenk. PflErnähr.* 29, 1943 (169-212). [G.] VI, 4
- 631.434—Van der Merwe, C. R.** Soil structure. *Farm. S. Africa* 18, 1943 (621-624). VII, 2
- 631.434—Agricultural Engineering.** A report on soil tilth research. *Agric. Engng.* 25, 1944 (48, 51).
- 631.434—Puri, A. N.; Rai, B.** Physical characteristics of soils. VIII. State of aggregation. *Soil Sci.* 57, 1944 (391-396). VII, 4
- 631.434 : 539.41—Oganesian, A. P.** The relation of the specific resistance to ploughing to different depths to the structure of the soil profile. *Sborn. Pam. W. R. Williams*, 1942 (283-290). [R.] VII, 3
- 631.434 : 551.577—Johansson, S.** The effect of rain on soil structure. *Lantmannen* 25, 1941 (471-472). [Sw.] VII, 3
- 631.434 : 551.577—Dolgov, S. I.; Yarnikov, A. N.** Experiments on the resistance of soil structure to rain. *Sborn. Pam. W. R. Williams*, 1942 (369-375). [R.] VII, 3
- 631.434 : 631.347.24—Ivanchenko, F. L.** Effect of the structure of artificial rain on the character of the moistening and on the agro-physical properties of the soil. *Pedology* No. 6, 1940 (57-64). [R.G.] IV, 2

# BIBLIOGRAPHY OF SOIL SCIENCE

- V, 2     **631.434 : 631.412**—Myers, H. E. Some physicochemical aspects of soil aggregates. *Soil Sci.* 52, 1941 (469-480).
- 631.434 : 631.414.324**—Aleshin, S. N. Experimental application of certain elements of physical and colloid chemistry to problems of soil science and agricultural chemistry. *Pedology* No. 4, 1941 (20-29). [R.g.]
- IV, 1    **631.434 : 631.417**—Elson, J.; Lutz, J. F. Factors affecting aggregation of Cecil soils and effect of aggregation on run-off and erosion. *Soil Sci.* 50, 1940 (265-275).
- V, 3     **631.434 : 631.417**—Drozdetsky, P. A. Effect of organic matter on structure formation in a solonets. *Pedology* No. 7-8, 1941 (50-59). [R.g.]
- V, 4     **631.434 : 631.417**—Alderfer, R. B.; Merkle, F. G. The comparative physical constitution of water-stable granules and of the originating soil. *Soil Sci.* 53, 1942 (105-113).
- V, 5     **631.434 : 631.417**—Browning, G. M.; Millam, F. M. Rate of application of organic matter in relation to soil aggregation. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (96-97).
- V, 6     **631.434 : 631.417**—Elson, J. A comparison of the effect of fertilizer and manure, organic matter, and carbon-nitrogen ratio on water-stable soil aggregates. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (86-90).
- VI, 2    **631.434 : 631.417**—Weldon, T. A.; Hide, J. C. Some chemical properties of soil organic matter and of sesquioxides associated with aggregation in soils. *Soil Sci.* 54, 1942 (343-352).
- VII, 1   **631.434 : 631.417**—Elson, J. Distribution of total and alkali-soluble organic matter between the whole soil and soil aggregates of Dunmore silt loam : II. Comparison of five aggregate-size groups 30 months after liming. *Soil Sci.* 56, 1943 (235-240).
- VII, 1   **631.434 : 631.417**—McCalla, T. M. Influence of biological products on soil structure and infiltration. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (209-214). *Biol. Abs.* 17 (2181).
- 631.434 : 631.417**—Musgrave, G. W.; Nichols, M. L. Organic matter in relation to land use. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (22-28). *Biol. Abs.* 17 (2182). *C.A.* 37 (5534).
- VI, 4    **631.434 : 631.417**—Peterson, J. B. Formation of water-stable structure in puddled soils. *Soil Sci.* 55, 1943 (289-300).
- VII, 3   **631.434 : 631.417**—Browning, G. M.; Millam, F. M. Effect of different types of organic materials and lime on soil aggregation. *Soil Sci.* 57, 1944 (91-106).
- IV, 1    **631.434 : 631.417.2**—Davydov, G. K. The formation of a surface crust in relation to the physico-chemical characterization of soils of a varying degree of cultivation. *Pedology* No. 3, 1940 (81-91). [R.g.]
- 631.434 : 631.417.2**—Gel'tser, F. Yu. The present position of the question of the humus substances of the soil. *Sovet. Agron.* No. 11-12, 1940 (22-29). [R.]
- VII, 2   **631.434 : 631.417.2**—Ehrenberg, P. What influence have permanent humus and nutrient humus on the crumb structure of soil? *ForschDienst. Sonderh.* 17, 1941 (59-61). *C.A.* 37 (6071).
- IV, 1    **631.434 : 631.418**—Myers, H. E.; Jones, H. E. Solution concentration as a possible factor influencing soil aggregation. *J. Amer. Soc. Agron.* 32, 1940 (664-668).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.434 : 631.431**—Czeratzki, W. Influence of soil swelling and colloidal shrinkage on soil structure. *Kühn-Archiv* 54, 1940 (133-169). C.A. 36 (4947). VI, 2
- 631.434 : 631.431**—Frantesson, V. A. Swelling and settling in chernozem soils in relation to the stability of their structure. *Pedology* No. 1, 1942 (33-38). [R.] VI, 3
- 631.434 : 631.432.2**—Stranski, I. T.; Bojanoff, P. The water stability of structural aggregates in relation to their moisture content. *Ann. Univ. Sofia Fac. Agron. Sybicult.* 17, 1939 (258-283). *ForschDienst.* 11 (52). IV, 6
- 631.434 : 631.432.2**—Tsyganov, M. S. Soil structure and moisture. *Pedology* No. 8, 1939 (82-90). [R.e.] IV, 1
- 631.434 : 631.432.2**—Kolodny, L.; Neal, O. R. The use of micro-aggregation or dispersion measurements for following changes in soil structure. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (91-95). V, 5
- 631.434 : 631.432.3**—Judd, B. I.; Hunsaker, H.; Goldman, M. Soil aggregation and water percolation from a limited area in the Salt River Valley, Arizona. *J. Amer. Soc. Agron.* 33, 1941 (652-656). IV, 6
- 631.434 : 631.435**—Kaspirov, A. I. Factors affecting the formation of soil crusts. *Pedology* No. 7, 1940 (60-75). [R.] IV, 2
- 631.434 : 631.435**—Nicollier, V. S. Distribution of aggregates and soil structure. *An. Soc. Cient. Argentina* 130, 1940 (193-209). C.A. 35 (1919). IV, 4
- 631.434 : 631.435.1**—Koposov, I. P. Possibilities of artificial structure formation in sands and sandy soils as measures for their fixation and improvement. *Azovo-Chernomorsk. S.-Kh. Inst. Sborn. Nauch.-Issled. Rab.* 8, 1939 (61-84). *Pedology* No. 11, 1940 (100). IV, 4
- 631.434 : 631.452**—Chen, E.-F. Effect of the structure on the fertility of purple-brown soils of Pehpei, Szechuan. *Natl. Geol. Surv. China Spec. Soils Pub.* 4, 1941 (23-25). [E.] IV, 5
- 631.434 : 631.452**—Sekera, F. What is tilth? *Phosphorsäure* 10, 1941 (257-299). *Zbl. Bakt.* 11, 105 (47). [G.] V, 5
- 631.434 : 631.452**—Martin, W. S. Soil structure. *E. Afric. Agric. J.* 9, 1944 (189-195). VII, 3
- 631.434 : 631.461**—Sokolov, N. S. New data on the conditions of the formation of soil structure in agriculture. *Sever. Agron.* No. 10, 1940 (66-72). [R.]
- 631.434 : 631.461**—Martin, J. P.; Waksman, S. A. Influence of microorganisms on soil aggregation and erosion : II. *Soil Sci.* 52, 1941 (381-394). V, 2
- 631.434 : 631.461**—Mishustin, E. N. The role of the microbiological factor in the formation of soil structure. *Mikrobiologia* 10, 1941 (342-356). *Biol. Abs.* 16 (1853).
- 631.434 : 631.461**—Myers, H. E.; McCalla, T. M. Changes in soil aggregation in relation to bacterial numbers, hydrogen-ion concentration, and length of time soil was kept moist. *Soil Sci.* 51, 1941 (189-200). IV, 4
- 631.434 : 631.461**—Myers, H. E.; McCalla, T. M.; Jones, H. E. Evidence of the limited importance of soil bacteria as a direct factor in the aggregation of prairie soils. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (254). IV, 6

# BIBLIOGRAPHY OF SOIL SCIENCE

- IV, 6    **631.434 : 631.461**—Peele, T. C.; Beale, O. W. Influence of microbial activity upon aggregation and erodibility of lateritic soils. *Proc. Soil Sci. Soc. Amer.* (1940), 5, 1941 (33-35).
- V, 3    **631.434 : 631.461**—Pohlman, G. G.; Nottingham, R. J. Numbers of micro-organisms in relation to aggregate size. *Iowa St. Coll. J. Sci.* 15, 1941 (447-450). E.S.R. 86 (159).
- VII, 4    **631.434 : 631.461**—Mishustin, E. N.; Pushkinskaya, O. I. Role of the microbiological factor in the formation of soil structure. *Mikrobiologia* 11, 1942 (92-104). C.A. 38 (3065). [R.e.]
- V, 5    **631.434 : 631.461**—Peele, T. C.; Beale, O. W. Effect on run-off and erosion of improved aggregation resulting from the stimulation of microbial activity. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (176-182).
- VII, 3    **631.434 : 631.461**—Gel'tser, F. Yu. The process of formation of active humus of the sod type. *Pedology* No. 9-10, 1943 (62-74). [R.e.]
- VII, 4    **631.434 : 631.461**—McHenry, J. R.; Russell, M. B. Microbial activity and aggregation of mixtures of bentonite and sand. *Soil Sci.* 57, 1944 (351-357).
- IV, 6    **631.434 : 631.461.1/3**—Gusev, S. P. Decomposition of organic substances in soil, and their influence on the physical and physico-chemical properties of soils. *Khim. Sotsial. Zemled.* No. 5, 1940 (19-26). [R.]
- 631.434 : 631.461.1/3**—Martin, W. P.; Kleinkauf, W. A. Influence of the decomposition of organic materials on some properties of alkaline-calcareous soils. *Iowa St. Coll. J. Sci.* 15, 1941 (385-402). E.S.R. 86 (160).
- VII, 1    **631.434 : 631.461.1/3**—Martin, J. P. The effect of composts and compost materials upon the aggregation of the silt and clay particles of Collington sandy loam. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (218-222). Biol. Abs. 17 (2182).
- VI, 4    **631.434 : 631.51**—Germanova, V. N. The formation of a soil structure by mechanical means under moist conditions. *Trudi Inst. Sotsial. Zemlerob.* 4, 1939 (181-209). [U.r.]
- IV, 6    **631.434 : 631.51**—Retzger, J. L.; Russell, M. B. Differences in the aggregation of a prairie and a gray-brown podzolic soil. *Soil Sci.* 52, 1941 (47-58).
- IV, 6    **631.434 : 631.51**—Rost, C. O.; Rowles, C. A. A study of factors affecting the stability of soil aggregates. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (421-433).
- V, 4    **631.434 : 631.51**—Sudds, R. H.; Browning, G. M. The effect of soil-management methods on certain physical and chemical properties in relation to the infiltration rates in West Virginia orchards. *Proc. Amer. Soc. Hort. Sci.* (1941) 39, 1941 (38-46). Hort. Abs. 12 (20).
- V, 3    **631.434 : 631.51**—Tlagny-Riadno, M. G. Physico-chemical and microbiological studies of layered cultivation. *Pedology* No. 2, 1941 (34-42). [R.g.]
- 631.434 : 631.51**—Jacks, G. V. Russian work in soil science. *Chron. Bot.* 7, 1942 (177-178).
- VII, 3    **631.434 : 631.51**—Popazov, D. I. Concerning the necessity of inverting the surface layer of soil when ploughing up. *Sborn. Pam. W. R. Williams*, 1942 (267-282). [R.]

# FERTILIZERS AND GENERAL AGRONOMY

- 631.434 : 631.51**—Swanson, C. L. W.; Peterson, J. B. The use of the micrometric and other methods for the evaluation of soil structure. *Soil Sci.* 53, 1942 (173-185). V, 4
- 631.434 : 631.58**—Kurtesov, A. P. The effect of perennial grasses, maize, soya and fallow on soil structure. *Pedology* No. 8, 1939 (77-81). [R.e.] IV, 1
- 631.434 : 631.58**—Timofeev, A. T. Water stability of soil structure. *Zap. Voronezh. S.-Kh. Inst.* 17, No. 2, 1939 (23-32). *Pedology* No. 11, 1940 (101). V, 2
- 631.434 : 631.58**—Elson, J. A comparison of the effect of certain cropping and fertilizer and manuring practices on soil aggregation of Dunmore silt loam. *Soil Sci.* 50, 1940 (339-355). C.A. 35 (2263). *Biol. Abs.* 15 (807). IV, 4
- 631.434 : 631.58**—Hide, J. C.; Metzger, W. H. Soil aggregation as affected by certain crops and organic materials and some chemical properties associated with aggregation. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (19-22). IV, 1
- 631.434 : 631.58**—Woodruff, C. M. Variations in the state and stability of aggregation as a result of different methods of cropping. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (13-18). IV, 1
- 631.434 : 631.58**—Alderfer, R. B.; Merkle, F. G. The measurement of structural stability and permeability and the influence of soil treatments upon these properties. *Soil Sci.* 51, 1941 (201-212). IV, 5
- 631.434 : 631.58**—Lutz, J. F. The effect of different cropping and cultural treatments on some physical properties of Cecil soil. *Proc. Assoc. S. Agric. Workers* 42, 1941 (96). C.A. 35 (7615). VI, 3
- 631.434 : 631.58**—Alderfer, R. B.; Merkle, F. G. Structural stability and permeability of native forest soils compared with cultivated areas of the same soil type. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (98-103). V, 5
- 631.434 : 631.58**—Havis, A. L. Aggregation of an orchard soil under sod, mulch, and cultivation. *Proc. Amer. Soc. Hort. Sci.* (1942) 40, 1942 (28). E.S.R. 88 (596). VI, 3
- 631.434 : 631.58**—Ackerman, F. G.; Myers, H. E. Some factors influencing aggregation of claypan soils. *Soil Sci.* 55, 1943 (405-413). VI, 3
- 631.434 : 631.58**—Basu, J. K.; Sirur, S. S. Soils of the Deccan canals. III. Studies on the effect of various rotational crops and green manures on the soil and on the succeeding cane crop, with special reference to soil structure. *Indian J. Agric. Sci.* 13, 1943 (86-86). VI, 4
- 631.434 : 631.58**—Browning, G. M.; Russell, M. B.; Johnston, J. R. The relation of cultural treatment of corn and soybeans to moisture condition and soil structure. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (108-113). *Biol. Abs.* 17 (2177). VII, 1
- 631.434 : 631.58**—Johnston, J. R.; Browning, G. M.; Russell, M. B. The effect of cropping practices on aggregation, organic-matter content, and loss of soil and water in the Marshall silt loam. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (105-107). *Biol. Abs.* 17 (2173). C.A. 37 (5535). VII, 1
- 631.434 : 631.58**—Zobler, L.; Kardos, L. T. Exchangeable cation status and structure of Palouse silty clay loam as influenced by various cropping and fertility practices. *Soil Sci.* 55, 1943 (147-158). VI, 3

# BIBLIOGRAPHY OF SOIL SCIENCE

- VII, 4 **631.434 : 631.58**—Albrecht, W. A.; Sosne, J. Soil granulation and percolation rate as related to crops and manuring. *J. Amer. Soc. Agron.* 36, 1944 (646-648).
- IV, 2 **631.434 : 632.651.6**—Gur'ianova, O. Z. The effect of earthworms and organic manure on structure formation. *Pedology* No. 4, 1940 (99-107). [R.g.]
- 631.434 : 632.651.6**—Seliakov, S. N. Structural chernozems of the Altai foothills. *Pedology* No. 2, 1941 (26-33). [R.]
- IV, 2 **631.434 : 633.2.03**—Vorob'eva, E. I. The rôle of perennial grasses in raising the yielding capacity of chestnut soils. *Pedology* No. 11, 1939 (81-88). [R.]
- 631.434 : 633.2.03**—Morgenweck, G. Comparisons of the structure of arable land and grassland. *Pflanzenbau* 18, 1941 (161-191). Herb. Abs. 12 (122).
- V, 3 **631.434 : 633.2.03**—Peredery, F. G. The influence of perennial grasses on the structure of soils. *Pedology* No. 2, 1941 (22-25). [R.g.]
- V, 3 **631.434 : 633.2.03**—Red'kin, N. E. The effect of grasses on the physico-chemical properties of the soil and on tobacco yields. *Pedology* No. 7-8, 1941 (60-73). [R.]
- V, 3 **631.434 : 633.2.03**—Tsiivenko, I. A. The change of soil structure produced by utilization of virgin forest soil. *Pedology* No. 2, 1941 (13-21). [R.g.]
- VII, 1 **631.434 : 633.2.03**—Pavlychenko, T. K. Root systems of certain forage crops in relation to the management of agricultural soils. *Canada Natl. Res. Coun. No. 1088*, 1942, pp. 46.
- VII, 3 **631.434 : 633.2.03**—Taruntaev, A. A. The rôle of perennial grasses in creating conditions of fertility in soils. *Sborn. Pam. W. R. Williams*, 1942 (307-315). [R.]
- VII, 4 **631.434 : 633.2.03**—Martin, W. S. Grass covers in their relation to soil structure. *Emp. J. Expt. Agric.* 12, 1944 (21-32).
- IV, 2 **631.434 : 633.32-1.86**—Rubashev, A. B. The effect of manure and clover in improving the soil structure and the physico-chemical properties of water-stable aggregates. *Pedology* No. 4, 1940 (86-98). [R.g.]
- IV, 2 **631.434 : 633.63**—Kanivets, I. I.; Pritsker, N. Ya. Increased soil structure stability in microzones under the influence of sugar beet, manure and other structure formers. *Sci. Stud. Sug. Res. Inst. Moscow* (1937), 1939 (214-217). *Pedology* No. 6, 1940 (126).

## 631.435 SOIL TEXTURE

- IV, 6 **631.435 : 581.144.2**—Yurkevich, I. D. The development of the root system of *Euonymus verrucosa* L. as dependent on soil conditions and forest type. *Bot. Zh. S.S.S.R.* 25, 1940 (131-138). For. Abs. 3 (29). [R.e.]
- V, 6 **631.435 : 631.416**—Graham, E. R. Soil development and plant nutrition: I. Nutrient delivery to plants by the sand and silt separates. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (259-262).
- 631.435 : 631.416**—Joffe, J. S.; Kunin, R. Mechanical separates and their fractions in the soil profile: I. Variability in chemical composition and its pedogenic and agropedologic implications. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (187-193). Biol. Abs. 17 (2180).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.435 : 631.43—Novák, V.** The effect of degree of subdivision on the physical properties of quartz sands. *Sborn. Čsl. Akad. Zeměd.* 16, 1941 (293-298). C.A. 37 (2858). VII, 3
- 631.435 : 631.557—Gericke, S.** The influence of soil variety on the yield performance of our crops. *Bodenk. PflErnähr.* 21/22, 1940 (743-756). *ForschDienst.* 11 (74). [G.] IV, 6
- 631.435 : 631.557—Johnson, W. M.; Bortfeld, C. F.** The effect of soil texture and slope of land on productivity in two North Dakota counties. *N. Dak. Agric. Expt. Sta. Bull.* 315, 1942, pp. 22. E.S.R. 87 (635).
- 631.435.1 : 631.58—Grantham, G. M.; Millar, C. E.** Sandy soils. Methods of management. *Mich. Agric. Expt. Sta. Spec. Bull.* 248, 1941, pp. 39. *Biol. Abs.* 16 (1875).
- 631.435.1 : 631.58—Oldershaw, A. W.** Farming light land in war-time. *J. Min. Agric.* 47, 1941 (238-245). *Herb. Abs.* 11 (143).
- 631.435.1 : 631.821.1—Kudriashev, V.** The liming of light soils. *Khim. Sotsial. Zemled.* No. 11-12, 1940 (32-36). C.A. 37 (6390). VII, 2
- 631.435.1 : 631.821.1—Nafziger, J.** Results of soil investigations on liming experiments. *Forstwiss. Ch.* 62, 1940 (59-64). C.A. 35 (4141). IV, 5
- 631.435.4 : 631.434—Chang, C. W.** An experimental study on the development of adobe structures in soils. *Soil Sci.* 52, 1941 (213-227). V, 1
- 631.435.4 : 631.51—Titta, G.** Tillage trials of very clayey soils. *Ann. Fac. Agrar. Univ. Pisa* 2, 1939 (191-209). *Biol. Abs.* 16 (218). [I.e.] V, 3

## 631.436 SOIL TEMPERATURE

- 631.436—Dravid, R. K.** Studies on soil temperatures in relation to other factors controlling the disposal of solar radiation. *Indian J. Agric. Sci.* 10, 1940 (352-387). IV, 1
- 631.436—Jacobs, W. C.** A comparison of upper soil temperatures and shelter temperatures. *Bull. Amer. Met. Soc.* 21, 1940 (181-183). E.S.R. 84 (153). IV, 4
- 631.436—Hide, J. G.** A graphic presentation of temperatures in the surface foot of soil in comparison with air temperatures. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (31-35). *Biol. Abs.* 17 (2180). VII, 1
- 631.436 : 525.5—Pozdena, L.** Studies on the temperature regime of the soil. *Bodenk. PflErnähr.* 21 22, 1940 (229-266). *ForschDienst.* 11 (54). IV, 6
- 631.436 : 525.5—Penman, H. L.** Daily and seasonal changes in the surface temperature of fallow soil at Rothamsted. *Quart. J. Roy. Met. Soc.* 69, 1943 (1-16). VI, 2
- 631.436 : 551.578.4—Titlianov, A.** Pre-term removal of snow from the fields as a method of soil management in Kamchatka. *Dokl. Akad. S.-Kh. Nauk* No. 8, 1941 (8-11). *Biol. Abs.* 16 (1876). VI, 1
- 631.436 : 551.578.4—Worzella, W. W.; Cutler, G. H.** Factors affecting cold resistance in winter wheat. *J. Amer. Soc. Agron.* 33, 1941 (221-230). IV, 4
- 631.436 : 551.58—Kostin, S. I.** Effect of meteorological factors on soil temperature. *Zap. Voronezh. S.-Kh. Inst.* 17, 1939 (13-21). *Pedology* No. 6, 1940 (111). IV, 2



# BIBLIOGRAPHY OF SOIL SCIENCE

- IV, 1    **631.436 : 631.432.2**—**Smith, W. O.** Thermal conductivities in moist soils. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (32-40).  
           **631.436 : 631.432.2**—**Moore, R. E.** The relation of soil temperature to soil moisture; pressure potential, retention, and infiltration rate. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (61-64).
- V, 6    **631.436 : 631.432.2**—**Smith, W. O.** The thermal conductivity of dry soil. *Soil Sci.* 53, 1942 (435-459).
- IV, 3    **631.436 : 631.435**—**Wedmore, E. B.** Thermal conductivity of soil. *Quart. J. Roy. Met. Soc.* 67, 1941 (38).
- V, 2    **631.436 : 631.51** **Gerasimov, G. A.** Effect of cultivation and manuring on the temperature and moisture of the soil. *Trudy Perm. S.-Kh. Inst.* 7, No. 2, 1939 (47-80). *Pedology* No. 11, 1940 (107).
- IV, 6    **631.436 : 631.51** **Geiger, R.; Fritzsche, G.** Late frost and full ploughing. *Fortschritt* 16, 1940 (141-156). *For. Abs.* 3 (43). [G.]
- V, 1    **631.436 : 631.547.2** **Liärtel, O.** Microclimate and growth in tulip beds. *Botkin. Botl. Met. Zischn.* 6, 1939 (134-137). *E.S.R.* 83 (447).
- IV, 1    **631.436 : 631.547.2** **Smith, A.** Value of mean and average soil and air temperatures. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (41-49).  
           **631.436 : 631.67** **Yokota, R.; Ito, H.** Effect of irrigation on soil temperature in soybean and wheat fields. *Manchoukwo Agric. Expt. Sta. Res. Bull.* 33, 1940 (1-27). [J.]
- V, 3    **631.436 : 634.62** **Bliss, D. E.; Moore, D. C.; Bream, C. E.** Air and soil temperatures in a California date garden. *Soil Sci.* 53, 1942 (55-64).
- V, 2    **631.436.5 : 631.434** **Indian Farming.** Fired soil as fertilizer. *Indian Farm.* 2, 1941 (530-531).  
           **631.436.6**—**Dücker, A.** "Soil colloids" and their behaviour during freezing. *Baugewerk* 23, 1942 (235-237). *C.A.* 38 (466).
- IV, 6    **631.436.6 : 581.5** **Belotelkin, K. T.** Soil freezing and forest cover. *N.-E. For. Expt. Sta. Tech. Note* 37, 1940, pp. 4. *For. Abs.* 3 (19).
- IV, 3    **631.436.6 : 581.5** **Cooper, W. E.** Frost heaving and damage to black locust seedlings. *Ecology* 21, 1940 (501-504). *Biol. Abs.* 15 (11).
- IV, 1    **631.436.6 : 581.5** **Kienholz, R.** Frost depth in forest and open in Connecticut. *J. Forestry* 38, 1940 (346-350). *For. Abs.* 2 (113).
- IV, 2    **631.436.6 : 631.433.1** **Brierley, W. G.; Landon, R. H.; Nylund, R. E.** The effect of ice upon the survival of strawberry plants. *Proc. Amer. Soc. Hort. Sci.* (1939) 37, 1940 (557-563). *Biol. Abs.* 14 (1611).
- VI, 2    **631.436.6 : 631.434** **Eriksson, S.** The effect of frost on the structure of loamy and clay soils. *Lantbruksk. Ann.* 9, 1941 (80-115). [G.s.w.]
- VI, 3    **631.436.6 : 631.434** **Torstensson, G.; Eriksson, S.** The significance of soil freezing for structure formation in clay soils. *Kgl. Lantbruksk. Tidsskr.* 81, 1942 (127-136). [S.w. g.]
- VII, 1    **631.436.6 : 631.434**—**Post, F. A.; Dreibeis, F. R.** Some influences of frost penetration and microclimate on the water relationships of woodland, pasture, and cultivated soils. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (95-104). *Biol. Abs.* 17 (2183).

## FERTILIZERS AND GENERAL AGRONOMY

### 631.437 ELECTRICAL PROPERTIES OF SOIL

- 631.437**—**Tolstopiatov, B. V.** The problem of electro-chemical treatment of the ground. *Pedology* No. 8, 1940 (67-82). C.A. 35 (6721). [R.g.] VI, 3
- 631.437: 631.547.1**—**Nostitz, A. von.** The influence of an electric current on plants and soil. *Bodenk. Pflernähr.* 32, 1943 (146-154). [G.] VII, 3
- 631.437.31: 631.434**—**Kumutat, E.** Electrochemical soil sedimentation by the method of L. Casagrande. *Angew. Chem.* 53, 1940 (168-171). C.A. 34 (6790). IV, 1
- 631.437.31: 631.434**—**Vershinin, P. V.; Kirilenko, N. V.** The effect of a direct electric current on the water stability of soil. *Pedology* No. 3, 1940 (92-103). [R.g.] IV, 1
- 631.437.36**—**Puffeles, M.** Observations on the use of electro-dialysis in analysis of soils. *Analyst* 65, 1940 (501). B.C.A. 59 (884). IV, 2

### 631.44 SOIL CLASSIFICATION. SOIL TYPES

- 631.44**—**Gerasimov, I. P.** A general classification of the soils of the U.S.S.R. *Pedology* No. 7, 1942 (3-14). [R.e.] VI, 2
- 631.44**—**Zavalishin, A. A.** The work of the Commission on soil classification. *Pedology* No. 2, 1942 (53-58). [R.] VI, 2
- 631.44**—**Bushnell, T. M.** Some aspects of the soil catena concept. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (466-476). Biol. Abs. 17 (2177).
- 631.44**—**Herrera, J. M. A.; Hoyos, A. de Castro.** Soil classifications and soil types. *An. Inst. Edafol.* 2, 1943 (151-192). [Sp.] VII, 1
- 631.44**—**Smith, H. W.; Rhoades, H. F.** Variations in the Butler soil series in Nebraska. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (460-465). Biol. Abs. 17 (1961).
- 631.44**—**Thomas, R. P.; Specht, A. W.; Winant, H. B.** A catenary arrangement of Maryland soils. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (487-495). Biol. Abs. 17 (1961).
- 631.44**—**Zakharov, S. A.** A general classification of soils of the U.S.S.R. *Pedology* No. 8, 1943 (26-35). [R.e.] VII, 3
- 631.44: 549**—**Jeffries, C. D.; White, J. W.** Mineralogical soil analysis as an aid in soil classification. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (364-367). IV, 1
- 631.44: 549**—**Sedletsy, I. D.** Paragenetic groups of minerals in the principal types of soils. *C.R. Acad. Sci. (U.S.S.R.)* 32, 1941 (435-438). [E.] VI, 2
- 631.44: 549**—**Buckhannan, W. H.; Ham, W. E.** Preliminary investigation of heavy mineral criteria as an aid in the identification of certain soils in Oklahoma. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (63-67).
- 631.44: 55**—**Gwynne, C. S.; Simonson, R. W.** Influence of low recessional moraines on soil type pattern of the Mankato drift plain in Iowa. *Soil Sci.* 53, 1942 (461-466).
- 631.44: 631.413**—**Kardos, L. T.; Bowlsby, C. C.** Chemical properties of some representative samples of certain great soil groups and their relation to genetic soil classification. *Soil Sci.* 52, 1941 (335-349). V, 2

# BIBLIOGRAPHY OF SOIL SCIENCE

- IV, 5    **631.44 : 631.413**—Mattson, S. The laws of soil colloidal behavior: XXIII. The constitution of the pedosphere and soil classification. *Soil Sci.* 51, 1941 (407-425).
- VII, 2    **631.44 : 631.416**—Gössl, V. A study of the content of the readily soluble  $P_2O_5$  and  $K_2O$  in genetic soil types. *Šborn. Čsl. Akad. Zeměd.* 16, 1941 (419-424). C.A. 37 (4511).
- V, 6    **631.44 : 631.416**—Metzger, W. H. Chemical characteristics of some soils associated with diverse types of carbonate horizons and of associated normal soils. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (351-353).
- IV, 2    **631.44 : 631.435**—Gračanin, M. Classification of skeletal soils. *Soil Res.* 7, 1940 (33-39). C.A. 34 (7506).
- VII, 2    **631.44 : 631.435**—Aaltonen, V. T. Concerning soil classification. *Commun. Inst. Forest Fenn.* 29, No. 6, 1941 (1-42). For. Abs. 5 (159). [Fig.]
- VI, 3    **631.44 : 631.435**—Burmister, D. M. Classification system for composite soils. *Engng. News-Rec.* 127, 1941 (171-173). C.A. 35 (6373).
- 631.44 : 631.47**—Ableiter, J. K.; Storie, R. E.; Gaddis, P. L. Productivity ratings of soil types. *Missouri Agric. Expt. Sta. Bull.* 421, 1940 (13-32).
- 631.44 : 631.47**—Simonson, R. W.; Englehorn, A. J. Interpretation and use of soil classification in the solution of soil management problems. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (419-426). Biol. Abs. 17 (1960).

## 631.445 CLIMATIC SOIL TYPES

- VII, 2    **631.445.11 : 631.417**—Ponomareva, V. V. The organic matter in the soils of the Khibin massif. *Trudy Kol. Bazy Akad. Nauk S.S.S.R.* No. 5, 1940 (5-30). C.A. 37 (4171).
- VI, 4    **631.445.11 : 631.434**—Sharp, R. P. Soil structures in the St. Elias Range, Yukon Territory. *J. Geomorph.* 5, 1942 (274-301). Biol. Abs. 17 (1365).
- VI, 1    **631.445.11 : 631.461**—James, N.; Sutherland, M. L. Are there living bacteria in permanently frozen subsoil? *Canad. J. Res.* 20C, 1942 (228-235). Biol. Abs. 16 (1609).
- V, 6    **631.445.12**—Overbeck, F.; Schneider, S. Decomposition in peat, and its limiting horizon: a contribution to the study of high-moor development in Lower Saxony. *Angew. Bot.* 22, 1940 (321-379). Biol. Abs. 16 (1315).
- IV, 6    **631.445.13 : 581.5**—Fraser, G. K. Vegetation survey of waste land in relation to the establishment of woodlands. *Forestry* 14, 1940 (59-70).
- 631.445.13 : 631.61**—Jones, B. H. Heath scrub lands. *J. Dept. Agric. S. Aust.* 43, 1940 (682-684).
- VI, 3    **631.445.13 : 631.61**—Clouston, D. The improvement of heath and moorland grazings. *Scot. J. Agric.* 24, 1943 (104-110).
- IV, 6    **631.445.2/3**—Wilde, S. A. The subdivision of the grey-brown podzolic soils from ecological and silvicultural viewpoints. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (336-340).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.445.2/3 : 549**—Cady, J. G. Soil analyses significant in forest soils investigations and methods of determination: 3. Some mineralogical characteristics of podzol and brown podzolic forest soil profiles. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (352-354). IV, 6
- 631.445.2/3 : 631.416**—Bengtsson, B.; Karlsson, N.; Mattson, S. The pedography of hydrologic soil series: IV. The distribution of Si, Al, Fe, Ti, Mn, Ca and Mg in the Unden podzol and the Dala brown earth series. *LantbrHögsk. Ann.* 11, 1943 (172-189). [E.]
- 631.445.2**—Koroljuk, S. F. Physico-chemical and productivity characteristics of regraded soils of the forest steppe of the Ukraine. *Pedology* No. 12, 1939 (11-29). [R.e.] IV, 2
- 631.445.2**—Aaltonen, V. T. The stratigraphy of podzol, III: Moor-type woods. *Commun. Inst. Forest. Fenn.* 29, No. 7, 1941 (1-43). For. Abs. 5 (1942). [G.] VII, 2
- 631.445.2**—Zavalishin, A. A. Soil formation in the middle taiga of the trans-Ural region. *Pedology* No. 4-5, 1944 (180-204). [R.e.]
- 631.445.2 : 546.27**—Sokolov, A. V. The influence of boron on unlimed podzolized soils in relation to soil fatigue. *Khim. Sotsial. Zemled.* 10, No. 6, 1941 (30-38). C.A. 37 (996). VII, 3
- 631.445.2 : 549**—Chirvinsky, P. N. Microscopic investigation of podzol from the town of Kirovsk. *C.R. Acad. Sci. (U.S.S.R.)* 26, 1940 (156-158). [E.] V, 2
- 631.445.2 : 551.481**—Eaton, T. H., Jr. Effect of submergence on a podzol soil profile in the Adirondack forest. *Soil Sci.* 53, 1942 (379-383). IV, 2
- 631.445.2 : 631.414.2**—Tiulin, A. F. Certain peculiarities of podzol soil colloids in connexion with their regulating capacity and structure. *Pedology* No. 3, 1940 (9-23). [R.e.]
- 631.445.2 : 631.432.2**—Vasil'ev, I. S. Data on the water conditions in podzol soils during the dry years 1938 and 1939. *Pedology* No. 4, 1941 (30-41). [R.] V, 3
- 631.445.2 : 631.432.3**—Benevol'sky, S. A. Permeability of podzol soils. *Trudy Inst. Sever. Zern. Khov.* No. 1, 1939 (65-85). *Pedology* No. 2, 1940 (103). IV, 2
- 631.445.2 : 631.48**—Rode, A. A. The formation of podzol soils. *Dokuchaev Inst. Soils U.S.S.R.* 1, 1939 (157-185). C.A. 34 (6398).
- 631.445.2 : 631.48**—Tiurin, I. V. The forest-steppe soils. *Dokuchaev Inst. Soils U.S.S.R.* 1, 1939 (187-223). C.A. 34 (6397). IV, 1
- 631.445.2 : 631.48**—Aarnio, B. Changes in the surface layer of the soil. *Maat. Aikak.* 12, 1940 (78- ). *Mezőg. Kutat.* 14 (69). [E.]
- 631.445.2 : 631.48**—Salminen, A. An error in estimating the quality and quantity of podzolisation processes in Finland. *Maat. Aikak.* 12, 1940 (70- ). *Mezőg. Kutat.* 14 (69). [E.] V, 1
- 631.445.2 : 631.48**—Yarkov, S. P. The process of podzol formation in the light of W. R. William's teaching. *Pedology* No. 4, 1940 (32-40). [R.g.]
- 631.445.2 : 631.48**—Remezov, N. P. Further studies of the theory of podzol formation. *Pedology* No. 3, 1941 (129-141). [R.] V, 3
- 631.445.2 : 631.48**—Mattson, S.; Koutler-Andersson, E. The electro-chemistry of soil formation: V. A lysimeter study of podzolic solvation and precipitation. *LantbrHögsk. Ann.* 10, 1942 (241-257). [E.] VI, 3

## BIBLIOGRAPHY OF SOIL SCIENCE

- V, 5     **631.445.2 : 631.48** --Melville, R. An observation concerning the behaviour of clay materials in the formation of eluvial horizons in soil. *Bodenk. Pflernähr.* 27, 1942 (16-22). [G.]
- VII, 1    **631.445.2 : 631.48** --Chandler, R. F., Jr. The time required for podzol profile formation as evidenced by the Mendenhall glacial deposits near Juneau, Alaska. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (454-459). Biol. Abs. 17 (2178).
- 631.445.2 : 631.48** Rode, A. A. The possible role of plants in podzol formation. (Preliminary communication.) *Pedology* No. 4-5, 1944 (159-180). [R.e.]
- IV, 2     **631.445.2 : 631.51** --Novak, A. G. Deepening the arable horizon, and the lack of fertility in the sub-soil of shallow podzol soils of the Far East Region. *Soils and Vegetation of the Far East* No. 1, 1939 (5-58). *Pedology* No. 7, 1940 (101). [R.]
- IV, 2     **631.445.2 : 631.51** --Obolenskaya, L. I. Agro-chemical peculiarities and physical properties of virgin podzol soils. *Trudy Inst. Sever. Zem. Khoz.* No. 1, 1939 (113-127). *Pedology* No. 2, 1940 (110).
- V, 3       **631.445.2 : 631.51** --Pannikov, V. D. The physico-chemical and biological properties of the arable layer when it is deepened. *Trudy Gork. S.-Kh. Inst.* 2, 1939 (117-129). *Pedology* No. 1, 1941 (108).
- VI, 2     **631.445.2 : 631.51** --Tiulin, A. F. Increasing the fertility of newly cultivated podzol soils from the collond-chemical point of view. *Gedroiz Inst. Fert. Problems of Development of Reclaimed Soils* 1939 (40-32). C.A. 36 (5298).
- IV, 3     **631.445.2 : 631.51** --Beloshapko, M. K. Green-manuring and deepening the arable layer of soils of the turf-podzol zone. *Sovet. Agron.* No. 8-9, 1940 (50-60). [R.]
- IV, 2     **631.445.2 : 631.51** --Pavlovsky, M. A. Problems of the nutrient regime of virgin turf-podzol soils in relation to their development. *Pedology* No. 5, 1940 (16-31). [R.g.]
- IV, 1     **631.445.2 : 631.51** --Sharova, A. S. Changes in the properties of podzol soils under cultivation. *Pedology* No. 1, 1940 (40-53). [R.e.]
- IV, 2     **631.445.2 : 631.51** --Utey, I. V. Radical transformation of the profile of sod-podzol soils. *Pedology* No. 1, 1940 (24-39). [R.e.]
- VI, 2     **631.445.2 : 631.51** --Vinokurov, M. A.; Koloskova, A. V. The importance of manure and the sub-arable horizons in creating a thick cultural layer in podzol soils. *Pedology* No. 5-6, 1942 (8-18). [R.e.]
- VI, 4     **631.445.2 : 631.58** --Vernander, N. B. Regradation and carbonation of podzolized soils of the Ukraine. *Trudy Inst. Sotsial. Zemlerob.* 4, 1939 (71-126). [U.r.]
- 631.445.2 : 631.582** --Miriasov, Z. Z. Suitable crop rotations for the podzolic zone in the light of experimental data. *Vest. S.-Kh. Nauk. Agrotekh.* No. 1, 1940 (5-17). Herb. Abs. 13 (212).
- 631.445.2 : 631.81** --Egorov, V. E. The preparation and improvement of virgin podzol soils. *Gedroiz Inst. Fert. Problems of Development of Reclaimed Soils* 1939 (33-50). C.A. 36 (5297).
- VI, 2     **631.445.2 : 631.81** --Sapozhnikov, N. A.; Lezhva, V. V. The effect of fertilizers on newly cultivated soils. *Gedroiz Inst. Fert. Problems of Development of Reclaimed Soils* 1939 (59-87). C.A. 36 (6287).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.445.2 : 631.821.1**—Yarusov, S. S. Liming as a method for improving newly cultivated soils in the podzol zone. *Gedroiz Inst. Fert. Problems of Development of Reclaimed Soils 1939* (105-121). C.A. 36 (6288). VI, 2
- 631.445.2 : 631.821.1** Ganzha, B. A. The availability of potassium and nitrogen of the different horizons of podzolized soils. *Trans. Dokuchaev Inst.* 21, 1940 (53-66). C.A. 36 (2071). [R.e.] VI, 3
- 631.445.2 : 631.821.1** Kirsanov, A. T. Liming. II. The role of aluminium, manganese and iron in the fertility of podzolized soils and its evaluation in liming. *Trans. Dokuchaev Inst.* 21, 1940 (7-32). C.A. 36 (2071). [R.e.] VI, 3
- 631.445.2 : 631.821.1 : 631.86** Davydov, G. K. Theoretical premises for the amelioration of podzol soils with quicklime in combination with organic manures. *Pedology* No. 7-8, 1941 (31-39). [R.g.] V, 3
- 631.445.2 : 631.874** Elkonin, N. G. The significance of lupin-seed production in relation to deepening and cultivation of the arable layer of podzol soil. *Selekt. Semen.* No. 12, 1939 (16-18). C.A. 36 (6731). VI, 1
- 631.445.2 : 631.874** Alekseev, E. K. Green manuring of turf-podzol clays. *Khim. Sotsial. Zemled.* No. 2-3, 1940 (74-78). [R.] IV, 6
- 631.445.3 4**—Gulisashvili, V. Z. The "progradation" of forest brown soils in the higher mountain zone of the Caucasus. *Pedology* No. 7, 1942 (26-35). [R.e.] VI, 3
- 631.445.3**—Kawashima, R.; Suyama, G. Soil properties in the transitional region of steppe and brown forest soil in Manchuria. *J. Agric. Chem. Soc. Japan* 16, 1940 (809-812). [J.e.] IV, 1
- 631.445.3**—Kawashima, R.; Nagata, M. The regenerated brown forest soil in north-east Manchuria. *J. Agric. Chem. Soc. Japan* 17, 1941 (55-63). [J.e.] IV, 5
- 631.445.3**—Kawashima, R.; Nagata, M. Brown forest soil in the upper region of the Non River, North Manchuria. *J. Agric. Chem. Soc. Japan* 17, 1941 (144-148). C.A. 36 (604).
- 631.445.3** Najmr, S. Pedochemical characteristics of the brown-earth types on Algonkian argillite from the region of Prunonitz. *Sborn. Čsl. Akad. Zemled.* 16, 1941 (276-279). C.A. 37 (2857).
- 631.445.3** Zaitsev, B. D. A study of the brown forest soils of the Caucasus. *Pedology* No. 1-2, 1943 (47-54). [R.e.] VII, 1
- 631.445.3 : 631.48** Larsen, H.; Mattson, S. The pedography of hydrologic soil series: III. Loss on ignition and pH of the Dala brown earth series. *Lantbräggsk. Ann.* 9, 1941 (222-238). [E.sw.]
- 631.445.3 : 631.48** Pallmann, H.; Frei, E.; Hamdi, H. Redeposition by filtration of highly dispersed products of weathering and humification in the profile of the moderately developed brown earth. *Kolloid-Ztschr.* 103, 1943 (111-119). [G.] IV, 1
- 631.445.4**—Prasolov, L. I. Chernozem as a typical soil formation. *Dokuchaev Inst. Soils U.S.S.R.* 1, 1939 (225-259). C.A. 34 (6397). IV, 1
- 631.445.4 : 546.27**—Gurevich, S. M.; Katalymov, M. V. The action of boron on chernozem soils. *Khim. Sotsial. Zemled.* No. 11-12, 1940 (89-91). C.A. 37 (6390). VII, 2

# BIBLIOGRAPHY OF SOIL SCIENCE

- V, 4    **631.445.4 : 631.414.2**—Caldwell, A. C.; Rost, C. O. The chemical composition of the clay fractions of the black prairie soils of Minnesota. *Soil Sci.* 53, 1942 (249-263).
- V, 3    **631.445.4 : 631.416.872**—Bulycheva, V. E. Ferriferous chernozem. *Trudy Saratov. S.-Kh. Inst.* 1, 1939 (31-42). *Pedology* No. 7-8, 1941 (113).
- 631.445.4 : 631.432.2**—Laatsch, W. The water economy of the central German black earths. *Bodenk. Pfl.Ernähr.* 21/22, 1940 (95-110). [G.]
- VI, 3    **631.445.4 : 631.48**—Kazakov, V. E. The origin of the rich chernozem soils in Western Siberia. *Probl. Sovet. Pochvoved.* No. 7, 1939 (15-24). *C.A.* 36 (1127).
- VI, 2    **631.445.4 : 631.48**—Ponomarev, G. M.; Sedletsky, I. D. Genesis of chernozem and solonchaks types of soil in the Chernigov forest steppe. *Trans. Dokuchaev Inst.* 29, 1940 (243-309). *Pedology* No. 1, 1942 (54).
- IV, 2    **631.445.4 : 631.85**—Alov, A. S. Surface application of phosphate fertilizers as top-dressing for cereals. *Svetlovich. Pochvoved.* 3, 1939 (34-37). *Pedology* No. 5, 1940 (116).
- IV, 2    **631.445.5**—Kudrin, S. A. The chemistry of serozems. *Pedology* No. 6, 1940 (24-42). [R.]
- IV, 5    **631.445.5**—Magistad, O. C. Ion and plant relationships in western arid soils. *Soil Sci.* 51, 1941 (461-471).
- 631.445.5**—Sadovnikov, I. F. Classification of soils of the southern Trans-Volga region. *Pedology* No. 1, 1941 (3-21). [R.g.]
- IV, 3    **631.445.5 : 631.416.2**—Nemysovskaya, O. V. Phosphate studies in serozems. *Ak-Kavak Cent. Agrotech. Sta. Cotton Agrotech. and Agrochem. Problems* 1939 (83-105). *Pedology* No. 7, 1940 (105).
- IV, 2    **631.445.5 : 631.416.2**—Kaziev, M. Z. Forms of phosphorus in serozems. *Dokl. Akad. S.-Kh. Nauk* No. 17, 1940 (23-24). [R.]
- VI, 2    **631.445.5 : 631.416.2**—Kudrin, S. A. The content and mobility of phosphates in serozems from different parent materials. *Pedology* No. 5-6, 1942 (19-25). [R.e.]
- IV, 2    **631.445.5 : 631.417**—Sinlagin, I. I. Composition and certain properties of the organic matter of soils of the serozem zone in relation to their state of cultivation. *Trudy Kazakh. Inst. Zemled.* 1, 1939 (3-59). *Pedology* No. 6, 1940 (116).
- IV, 5    **631.445.5 : 631.417**—Kononova, M. M.; Lagunova, E. P. Results of a study of the organic matter of serozems from the Pakhta Aral sovkhos, Kazakhstan. *Trans. Dokuchaev Inst.* 23, 1940 (117-137). [R.e.]
- 631.445.5 : 631.43**—Sabinina, I. G. Some agrohydrological properties of soils of the bogaz zone of Central Asia. *Pedology* No. 7, 1943 (34-47). [R.e.]
- VII, 3    **631.445.5 : 631.461.51**—Yakubov, T. F. The microbiological characterization of sandy and saline soils of the semi-deserts and deserts of the U.S.S.R. *Shorn. Pam. W. R. Williams*, 1942 (235-246). [R.]
- VI, 3    **631.445.5 : 631.48**—Kudrin, S. A.; Rozanov, A. N. The effect of some primary minerals on the processes of weathering and soil formation under conditions of Central Asia. *Probl. Sovet. Pochvoved.* No. 7, 1939 (125-148). *C.A.* 36 (1275).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.445.5 : 631.51—Ryzhov, S. N.** Increasing the depth of the cultivated arable layer on serozems. *Sotsial. Sel'sh. Khoz. Uzbek.* No. 3-4, 1939 (50-56). *Pedology* No. 10, 1940 (105). IV, 4
- 631.445.5 : 631.51—Sokolov, F.; Shevchuk, N.; Durnovtsev, et al.** A system of soil cultivation prior to seeding under conditions of irrigated agriculture in Central Asia. *Sovet. Agron.* No. 10, 1940 (31-35). [R.] V, 1
- 631.445.5 : 631.58—Zonn, S. V.** Dynamics of nitrogen compounds in cultivated soils of sandy deserts with the trench system of agriculture. *Pedology* No. 3, 1940 (68-80). [R.] IV, 1
- 631.445.51—Fridman, N. G.; Antipov-Karataev, I. N.** The balance of nutrients in dark chestnut soils of the Transvolga region under irrigation. *Prim. Udob. Zasush. Rayon. Yugo-Vost. S.S.S.R.* 1940 (182-201). C.A. 37 (2860). VII, 2
- 631.445.51—Ganzha, B. A.** A profile study of soil fertility: chestnut-brown soils of the irrigated Transvolga region. *Trans. Dokuchaev Inst.* 21, 1940 (67-85). C.A. 36 (2068). [R.e.]
- 631.445.51 : 631.432.2—Sergeev, S. F.** Hydro-physical properties of the soils of the Transvolga region. *Pedology* No. 3, 1940 (104-117).
- 631.445.51 : 631.461—Riuger, A. A.** Micro-organisms in the chestnut and light-coloured chestnut soils of the Volga Germans' A.S.S.R., under different cultivation treatments. *Pedology* No. 4, 1940 (76-85). [R.e.] IV, 2
- 631.445.51 : 631.48—Prasolov, L. I.; Antipov-Karataev, I. N.** Chestnut soils. *Dokuchaev Inst. Soils U.S.S.R.* 1, 1939 (261-298). C.A. 34 (6746). IV, 1
- 631.445.52/3—Eremin, G. G.** Secondary salinization of alkali soils as one of the stages in the solonchak-solonets process. *Pedology* No. 9, 1939 (84-90). [R.] IV, 2
- 631.445.52/3 : 631.48—Ivanova, E. N.** The genesis and evolution of saline soils in connexion with the geographical surroundings. *Dokuchaev Inst. Soils U.S.S.R.* 1, 1939 (349-403). C.A. 34 (6746). IV, 1
- 631.445.52/3 : 631.48—Kurapov, I. A.** Genesis of the soils in the zone of arid and desert steppes of the Kalmuk ASSR. *Pedology* No. 11, 1940 (3-20). [R.] IV, 4
- 631.445.52—Nikitin, S. A.** Types of salinized soils of the southeastern part of the Caspian plain. *Pedology* No. 9, 1941 (3-25). [R.] VI, 1
- 631.445.52 : 631.414.324—Rost, O. O.; Chang, P. C.** Exchangeable bases of solonchak of the Red River Valley. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (354-359).
- 631.445.52 : 631.416.13—Itano, A.; Kawase, K.** A preliminary report on the investigations of the nitre soils in Manchoukuo. *Rept. Inst. Sci. Res. Manchoukuo* 4, 1940 (261-273). [J.e.]
- 631.445.53—Orlovsky, N. V.** Investigations of solonets soils in western Siberia in 1936-37. *Probl. Sovet. Pochved.* No. 9, 1939 (7-12). C.A. 36 (5298).
- 631.445.53—Rozanov, A. N.** Soda solonets soils and the deterioration of soils of the Chu River valley. *Probl. Sovet. Pochved.* No. 9, 1939 (3-6). C.A. 36 (6284). VI, 2
- 631.445.53—Uspanov, U. U.** The genesis and reclamation of "takyr". *Trans. Dokuchaev Inst.* 19, 1940 (3-116). [R.e.] VII, 2



## BIBLIOGRAPHY OF SOIL SCIENCE

- IV, 5    **631.445.53 : 581.144.2**—Shikhova, M. V. The root system of solonets vegetation. *Pedology* No. 12, 1940 (3-19). [R.g.]
- 631.445.53 : 631.414.2**—Kovda, V. A.; Kader, G. M. The total composition of the colloidal fraction in the trans-Volga solonets soils. *Probl. Sovet. Pochved.* No. 7, 1939 (177-208). C.A. 36 (1128).
- IV, 5    **631.445.53 : 631.417**—Kononova, M. M. Contribution to the study of the humus-forming processes in solonets soils. *Trans. Dokuchaev Inst.* 23, 1940 (87-116). [R.e.]
- VI, 2    **631.445.53 : 631.417**—Kononova, M. M. Nature of the organic matter of Trans-Volga solonets soils and the changes effected in it by amelioration and irrigation. *Trans. Dokuchaev Inst.* 24, 1940 (207-228). *Pedology* No. 1, 1942 (46).
- V, 2    **631.445.53 : 631.417**—Retzer, J. L.; Simonson, R. W. Distribution of carbon in morphological units from the B horizons of solonetz-like soils. *J. Amer. Soc. Agron.* 33, 1941 (1009-1013).
- IV, 1    **631.445.53 : 631.453** Orlovsky, N. V.; Kuptsova, A. M. Basic causes of plant-toxicity phenomena on solonets soils. *Pedology* No. 9, 1939 (73-91). [R.e.]
- IV, 1    **631.445.53 : 631.48**—Kovda, V. A. Solonets soils. *Dokuchaev Inst. Soils U.S.S.R.* 1, 1939 (299-348). C.A. 34 (6745).
- 631.445.53 : 631.48**—Usov, N. I. The soil complexes of the northern part of the Caspian lowlands and their possible irrigation. *Uchen. Zap. Saratov. Gosud. Univ.* 15, No. 1, 1940 (189-200). C.A. 35 (6375).
- V, 2    **631.445.53 : 631.81**—Makeev, N. I. Nutrient regime and efficiency of mineral fertilizers on the alkaline series of Trans-Ural forest-steppe soils. *Storn. Rab. Cheljabinsk. S.-Kh. Opyt. Sta.* 1, 1939 (177-210). [R.]
- IV, 5    **631.445.53 : 633.2.03**—Kovalevskaya, N. P. The effect of perennial grass on the physico-chemical properties of chestnut solonets soils. *Pedology* No. 12, 1940 (20-33). [R.g.]
- VI, 2    **631.445.54 : 631.466.3**—Proshkina-Lavrenko, A. I. The diatomaceous algae of depressions in relation to the origin of solods. *Pedology* No. 5-6, 1942 (38-43). [R.e.]
- IV, 6    **631.445.55 : 541.134.5**—Buehrer, T. F.; Martin, W. P.; Cardon, B. P. Redox potentials of desert soils under varying conditions of sterilization, aeration, and puddling. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (241).
- 631.445.55 : 549**—Brown, I. C.; Drosdoff, M. Chemical and physical properties of soils and of their colloids developed from granitic materials in the Mojave Desert. *J. Agric. Res.* 61, 1940 (335-352).
- VII, 1    **631.445.55 : 631.432.2**—Blagoveshchensky, E. N. Natural store of water in the soil of scrub deserts of Central Asia as related to the problem of their restoration. *C.R. Acad. Sci. (U.S.S.R.)* 38, 1943 (141-144). [E.]
- VI, 2    **631.445.55 : 631.432.2**—Löwy, H. On solidified water-films. *Phil. Mag.* 34, 1943 (67-70).
- V, 1    **631.445.6**—Dzena-Litovskaya, N. N. Red earth—terra rossa. *Priroda* No. 2, 1941 (31-37). [R.]
- IV, 4    **631.445.6 : 631.48**—Katakousinos, D. S. Soil formation in relation to the disintegration of different limestones. *Chim. Chron.* 3, 1938 (262-268). C.A. 34 (8133).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.445.6 : 631.81**—Innes, R. F. Preliminary notes on the manuring of maize on Jamaica "red dirt" (terra rossa soils). *J. Jamaica Agric. Soc.* 44, 1940 (321-324). IV, 1
- 631.445.7**—Raychaudhuri, S. P. Studies on Indian red soils. III. General morphological characteristics of some profiles. *Indian J. Agric. Sci.* 11, 1940 (220-235). V, 1
- 631.445.7**—Whitehouse, F. W. Studies in the late geological history of Queensland. I. The lateritic soils of Western Queensland. *Univ. Queensland Pap. Dept. Geol.* 2 (n.s.), No. 1, 1940 (2-22). IV, 3
- 631.445.7 : 546.284**—Taranovskaia, V. G. The effectiveness of lime and silicate applications on red loam. *Khim. Sotsial. Zemled.* No. 4, 1941 (37-42). *C.A.* 37 (711). VII, 3
- 631.445.7 : 549**—Raychaudhuri, S. P.; Mukherjee, K. C. Studies in Indian red soils. VI. Determination of mineralogical composition. *Indian J. Agric. Sci.* 12, 1942 (323-335).
- 631.445.7 : 549**—Raychaudhuri, S. P.; Sulaiman, M.; Bhuiyan, A. B. Physico-chemical and mineralogical studies of black and red soil profiles near Coimbatore. *Indian J. Agric. Sci.* 13, 1943 (264-272). VII, 3
- 631.445.7 : 551.58**—Raychaudhuri, S. P.; Chakravorty, J. N. Studies of Indian red soils. VII. Influence of rainfall and altitude above sea-level on the chemical composition of clay fractions of soil types. *Indian J. Agric. Sci.* 13, 1943 (252-254). VII, 2
- 631.445.7 : 581.5**—Thomas, A. S. The vegetation of the Sese Islands, Uganda. An illustration of edaphic factors in tropical ecology. *J. Ecol.* 29, 1941 (330-353). *For. Abs.* 3 (291). *Herb. Abs.* 12 (49). V, 4
- 631.445.7 : 631.412**—Raychaudhuri, S. P. Studies on the physico-chemical properties of associated black and red soils of Nyasaland Protectorate, British Central Africa. *Indian J. Agric. Sci.* 11, 1941 (100-109).
- 631.445.7 : 631.414.2**—Taranovskaia, V. G. Degree and character of the destruction of the soil absorbing complex as a basis for a refined semi-genetical classification of red soils in the Adzharian Soviet Republic. *Pedology* No. 1, 1940 (54-79). [R.e.] IV, 4
- 631.445.7 : 631.414.2**—Raychaudhuri, S. P.; Mukherjee, M. K. Studies on Indian red soils. IV. Nature of the weathering complex as determined by the Van Bemmelen-Hissink method of hydrochloric acid extract. *Indian J. Agric. Sci.* 11, 1941 (236-242). V, 1
- 631.445.7 : 631.414.2**—Sen, A.; Deb, B. C. Studies on laterite and red soils of India. IV. The potentiometric and conductometric titrations of inorganic colloids of laterite and red soils with caustic soda and baryta. *Indian J. Agric. Sci.* 11, 1941 (637-645).
- 631.445.7 : 631.414.2**—Siegel, O. The sorption complex of agricultural soils of Africa. *Bodenk. PflErnähr.* 29, 1943 (100-107). [G.] VI, 4
- 631.445.7 : 631.414.3.03**—Raychaudhuri, S. P.; Basuraychaudhuri, P. K. Studies on Indian red soils. V. Factors responsible for buffer capacities and base-exchange properties. *Indian J. Agric. Sci.* 12, 1942 (137-152). V, 5

# BIBLIOGRAPHY OF SOIL SCIENCE

- 631.445.7 : 631.416**—Raychaudhuri, S. P.; Sulaiman, M.; Basuraychaudhuri, P. K. Studies on the chemical constituents of Indian lateritic and red soils. II. Influences of free sesquioxides and free silica components of Indian red soils on the buffer curves of the soils. *Indian J. Agric. Sci.* 11, 1941 (603-613).
- V, 5 **631.445.7 : 631.416**—Sulaiman, M.; Mukherjea, K. C. Studies on the chemical constituents of Indian lateritic and red soils. III. Determination of the percentage of clay, maximum water-holding capacity and of free iron oxide, free alumina and free silica of lowermost layers of profile samples. *Indian J. Agric. Sci.* 12, 1942 (153-157).
- IV, 6 **631.445.7 : 631.416.2**—Doop, J. E. A. den. Factors influencing the availability of the indigenous phosphorus in an acid tropical soil. *Soil Sci.* 52, 1941 (101-120).
- 631.445.7 : 631.416.2**—Moser, F. Fixation and recovery of phosphate from some lateritic soils. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (328-334).
- IV, 6 **631.445.7 : 631.416.4**—Jacob, A. The fixation of fertilizer potash in tropical soils. *Bodenk. PflErnähr.* 21/22, 1940 (621-629). *ForschDienst* 11 (53). [G.]
- 631.445.7 : 631.417.2**—Scheffer, F.; Halfter, G. Investigations on the forms of humus in some tropical soils (Angola). *Bodenk. PflErnähr.* 18, 1940 (257-267). C.A. 35 (567). [G.]
- VII, 2 **631.445.7 : 631.417.2**—Vageler, P. Systematic consideration of the question of humus in the tropics and its practical usage. *Tropenpflanzer* 45, 1942 (3-12, 33-52). C.A. 37 (3868).
- VII, 2 **631.445.7 : 631.42**—Hellmers, J. H.; Köhler, R. Chemical, microscopic and physical investigations of two tropical soil types. *Ztschr. Prakt. Geol.* 49, 1941 (125-132). C.A. 37 (3213).
- VI, 4 **631.445.7 : 631.42**—Vageler, P. Problems of tropical and sub-tropical soil science and their investigation in the laboratory and field. *Bodenk. PflErnähr.* 29, 1943 (34-40). [G.]
- V, 1 **631.445.7 : 631.43**—Sen, A.; Deb, B. C. Studies on laterite and red soils of India. II. Certain physical constants and their relation to the content and the composition of clay. *Indian J. Agric. Sci.* 11, 1941 (617-629).
- VI, 4 **631.445.7 : 631.435**—Milne, G.; Calton, W. E. Mechanical composition of East African soils. *E. Afric. Agric. J.* 8, 1943 (202-208).
- V, 1 **631.445.7 : 631.436.5**—Sen, A.; Deb, B. C. Studies on laterite and red soils of India. III. Loss of materials at high temperature. *Indian J. Agric. Sci.* 11, 1941 (630-636).
- VII, 4 **631.445.7 : 631.44**—Vageler, P. The problem of soil science in the colonies. *Ztschr. Weltforstw.* 10, 1943 (165-179). *For. Abs.* 5 (223). [G.e.f.]
- 631.445.7 : 631.445.2**—Akulova, T. A. Sub-tropical podzols and their development. *Sovet. Subtrop.* No. 3, 1940 (8-16). [R.]
- IV, 6 **631.445.7 : 631.445.2**—Richards, P. W. Lowland tropical podzols and their vegetation. *Nature* 148, 1941 (129-131).
- 631.445.7 : 631.48**—Kuron, H. The formation of, and transformations in, the soil in the wet tropics. *Ernähr. Pfl.* 36, 1940 (89-92, 97-98). C.A. 36 (5299).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.445.7 : 631.48—Scaëtta, H.** Evolution of soils and vegetation in the lateritic zones of French West Africa. *C.R.* 212, 1941 (169-171). *Biol. Abs.* 16 (1316).
- 631.445.7 : 631.48—Indian Forester.** Forest soils. *Indian Forester* 68, 1942 (548-549). *For. Abs.* 5 (13). VI, 4
- 631.445.7 : 631.48—Polynov, B. B.** The red crust of weathering. *Pedology* No. 1, 1944 (7-28). [R.e.] VII, 4
- 631.445.7 : 631.483—Sen, A.; Deb, B. C.; Bhattacharji, P. B., et al.** Studies on laterite and red soils of India. V. The silica/sesquioxide ratio of the clay fraction. *Indian J. Agric. Sci.* 11, 1941 (646-651). V, 1
- 631.445.7 : 631.483—Glangeaud, L.** A statistical study of the effect of the bioclimate on the chemico-mineralogical features of soils from the Ivory Coast (silica-alumina ratio). *C.R.* 215, 1942 (360-362). [F.] VI, 4
- 631.445.7 : 631.483—Indian Forester.** Forest soils. *Indian Forester* 68, 1942 (329-332). *For. Abs.* 4 (150). VI, 2
- 631.445.7 : 631.821.1—Nakaidze, I. A.** Lime and phosphates on red soils. *Khim. Sotsial. Zemled.* No. 11-12, 1940 (79-82). *C.A.* 34 (8140). VII, 2
- 631.445.7 : 631.821.1—Peele, T. C.** The effects of calcium and magnesium on the physical properties of some lateritic soils. *Proc. Assoc. S. Agric. Workers* 41, 1940 (77). *C.A.* 34 (8140). IV, 4
- 631.445.72—Vijayaraghavan, C.; Rao, V. R.** The main cause of crop failure in the black soil tract of the Bellary District. *Madras Agric. J.* 27, 1939 (271-274). *Biol. Abs.* 16 (219). V, 3
- 631.445.72—Villar, E. H. del.** The tirs of Morocco. *Soil Sci.* 57, 1944 (313-339); *errata in ibid.* 58, No. 6, 1944.
- 631.445.72 : 631.416.1—Bal, D. V.** An investigation into the effect of different cropping systems on the nitrogen content of black cotton soil of the Central Provinces and Berar. *Nagpur Univ. J.* No. 8, 1942 (12-33). VII, 2
- 631.445.72 : 631.436.5—Sreenivasan, A.; Aurangabadkar, R. K.** Effect of fire-heating on the properties of black cotton soil in comparison with those of gray and of humus-treated soils. *Soil Sci.* 50, 1940 (449-462).
- 631.445.72 : 631.461.3—Prasad, M.; Patwardhan, N. K.** Studies on physico-chemical changes in black cotton soil during nitrification. *Indian J. Agric. Sci.* 11, 1941 (978-992). V, 4
- 631.445.73—Pendleton, R. L.** Further notes on laterite. *Proc. Sixth Pacific Sci. Cong.* 4, 1940 (973-978). VI, 1
- 631.445.73—Pendleton, R. L.** Laterite and its structural uses in Thailand and Cambodia. *Geog. Rev.* 31, 1941 (177-202). V, 1
- 631.445.73—Pendleton, R. L.** Laterite, or sila laeng, a peculiar soil formation. *Thai Sci. Bull.* 3, 1941 (61-77). [F.] VI, 1
- 631.445.73—Sen, A.** Studies on laterite and red soils of India. I. Introduction. *Indian J. Agric. Sci.* 11, 1941 (614-616).
- 631.445.73—Dhareshwar, S. S.** Laterite, its petrology and relation to plant growth. *Indian Forester* 68, 1942 (315-324). VI, 1
- 631.445.73—Mackay, J. H.** What is laterite? *Farm and Forest* 4, 1943 (10-15). *For. Abs.* 5 (89).

# BIBLIOGRAPHY OF SOIL SCIENCE

- V, 6     631.445.73 : 631.48—Pendleton, R. L.; Sharasuvana, S. Analyses and profile notes of some laterite soils and soils with iron concretions of Thailand. *Soil Sci.* 54, 1942 (1-25).
- VII, 1     631.445.73 : 631.48—Jones, B. Lateritic ironstone in Sokoto Province. *Farm and Forest* 4, 1943 (15-23).
- V, 2     631.445.9—Hardy, F.; Harper, A. S. Assessment of fertility of abnormal soils.—(A) Rendzina or humus-carbonate soil. Comparison of chemical tests with the Mitscherlich and other pot tests. *Trop. Agric. Trin.* 18, 1941 (214-221).
- VI, 4     631.445.9—Kubienna, W. Contribution to the study of soil evolution; evolution and systematics of rendzinas. *Bodenk. Pflernähr.* 29, 1943 (108-119). [G.]
- VII, 4     631.445.9—Kubienna, W. Contributions to the theory of soil evolution. The limestone brown loam (*terra fusca*) as a member of the evolutionary series of the central European rendzina. *Bodenk. Pflernähr.* 35, 1944 (22-45). [G.]
- VI, 3     631.445.9 : 631.85—Kirsanov, A. T.; Kirsanova, E. E.; Liutsernova, G. A. The specific influence of phosphorus fertilizers on rendzina for spring wheat with ammonia or nitrate sources of nitrogen. *Trans. Dokuchaev Inst.* 21, 1940 (87-105). C.A. 36 (2073). [R.e.]
- 631.445.9 : 634.9—Kovrigin, S. A. Characterization of the forest-growing properties of humus-carbonate soils. *Pedology* No. 8, 1939 (36-62). [R.e.]

## 631.452 8 FERTILITY. TOXICITY. EXHAUSTION

- V, 5     631.452—Ehrenberg, P. On the origin of the term "Boden-gare." *ForschDienst.* 13, 1942 (79-80). [G.]
- VI, 4     631.452—Crowther, E. M. The maintenance of soil fertility. *J. Roy. Soc. Arts* 91, 1943 (430-442).
- 631.452 : 33—Miller, L. B.; Bauer, F. C. Effect of soil and soil treatment on stability of crop production. *J. Amer. Soc. Agron.* 35, 1943 (475-481).
- VII, 4     631.452 : 549—Müller, H. Quantitative mineral analysis of soil and its importance for agriculture and forestry. *Soil Res.* 7, 1940-41 (115-129). C.A. 38 (2151).
- VI, 3     631.452 : 549—Graham, E. R. Soil development and plant nutrition: II. Mineralogical and chemical composition of sand and silt separates in relation to the growth and chemical composition of soybeans. *Soil Sci.* 55, 1943 (265-273).
- V, 5     631.452 : 619—Albrecht, W. A.; Smith, G. E. Biological assays of soil fertility. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (252-258).
- VI, 1     631.452 : 631.417—Ashworth, M. R. F. The fractionation of the organic matter, including nitrogen, of certain soils and its relation to their quality. *J. Agric. Sci.* 32, 1942 (349-359).
- 631.452 : 631.417—Watson, J. A. S. Humus and soil fertility. *Scot. J. Agric.* 23, 1942 (341-348).
- VII, 2     631.452 : 631.557—Worzella, W. W. Response of wheat varieties to different levels of soil productivity: I. Grain yield and total weight. *J. Amer. Soc. Agron.* 35, 1943 (114-124).

## FERTILIZERS AND GENERAL AGRONOMY

- 631.452 : 631.58**—Klemme, A. W.; Coleman, O. T. Inventorying soil productivity changes. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (447-456). V, 5
- 631.452 : 634.9**—Voorendyk, J. J. Effect of tree-planting on soil fertility. *Farm. S. Africa* 18, 1943 (673-676, 678).
- 631.453 : 546.19**—Rosenbaum, H. Researches on injury to plant growth from arsenic in the soil. *Bodenk. PflErnähr.* 19, 1940 (248-252). *Biol. Abs.* 15 (2107). [G.] V, 1
- 631.453 : 546.19**—Johnson, J. P. Vegetables in poisoned lawns. *Horticulture* 21, 1943 (166). C.A. 37 (4524). VII, 2
- 631.453 : 546.19**—Vandecaveye, S. C. Growth and composition of crops in relation to arsenical spray residues in the soil. *Proc. Sixth Pacific Sci. Cong.* 6, 1943 (217-223). R.A.E. 32A (43). VII, 2
- 631.453 : 546.19**—Vincent, C. L. Vegetable and small fruit growing in toxic ex-orchard soils of central Washington. *Wash. Agric. Expt. Sta. Bull.* 437, 1944, pp. 31. VII, 4
- 631.453 : 546.226**—Wilshaw, R. G. H. Note on the development of high acidity in certain coastal clay soils of Malaya. *Malay. Agric. J.* 28, 1940 (352-357). IV, 1
- 631.453 : 581.144.2 : 634.25**—Proebsting, E. L.; Gilmore, A. E. The relation of peach root toxicity to the re-establishing of peach orchards. *Proc. Amer. Soc. Hort. Sci.* (1940) 38, 1941 (21-26). C.A. 35 (4539). IV, 6
- 631.453 : 631.466.1**—Neilson-Jones, W. Biological aspects of soil fertility. *J. Agric. Sci.* 31, 1941 (379-411). V, 1
- 631.458**—Italia Agricola. Soil exhaustion. *Ital. Agric.* 79, 1942 (425-428). [I.] VI, 2
- 631.458**—Snyder, H. J. Soil depletion reduces feeding value of crops. *Trans. Ill. St. Acad. Sci.* 36, No. 2, 1943 (59-60). C.A. 38 (823).
- 631.458**—Neugebauer, V. The onset of soil defects with reference to soil-building processes on young diluvial plateaux. *ForschDienst.* 17, 1944 (151-153). [G.] VII, 4
- 631.458 : 631.411.4**—Pozdena, L.; Bartram, H. Soil ills of complex nature. *Bodenk. PflErnähr.* 17, 1940 (33-55). C.A. 35 (241). [G.] IV, 3

## 631.459 EROSION

- 631.459**—Bennett, H. H. Soil changes due to erosion. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (399-401).
- 631.459**—Coates, W. H. Soil erosion criteria. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (431-432).
- 631.459**—Flick, J. C. Erosion and how it is affected by the disturbance of natural balances. *Farm. S. Africa* 16, 1941 (227-228).
- 631.459**—Leeuwen, W. van. Remarks on erosion. *Bergcultures* 15, 1941 (1498-1502). [Du.]
- 631.459**—Schiff, L.; Yoder, R. E. Dynamics of water erosion on land-surfaces. *Trans. Amer. Geophys. Un.* 22, 1941 (287-298). E.S.R. 88 (747). V, 6
- 631.459**—Sobolev, S. S. A certain regularity in the development of the processes of ravine erosion on the European plain of the U.S.S.R. *Pedology* No. 3, 1941 (59-68). [R.g.]

# BIBLIOGRAPHY OF SOIL SCIENCE

- IV, 6     **631.459—Twenhofel, W. H.** Agricultural significance of erosion losses. *Amer. J. Sci.* 239, 1941 (357-364). B.C.A.B. III, 1941 (194).
- 631.459—Li, L. Y.** Fundamental concepts of soil deterioration (1). *N.Z. J. Agric.* 67, 1943 (177-180). Hort. Abs. 14 (2).
- VII, 4     **631.459 : 555.01—Sokolovsky, A. N.** Liquidating the results of erosion caused by war. *Pedology* No. 2-3, 1944 (115-118). [R.]
- 631.459 : 551.3.051—Mortimore, M. E.** A double check on erosion. *Soil Conservation* 7, 1941 (150-151).
- 631.459 : 551.3.051—Brown, C. B.** The control of reservoir silting. *U.S.D.A. Misc. Pub.* 521, 1943, pp. 166.
- VII, 4     **631.459 : 551.3.051—Gottschalk, L. C.** Sedimentation in a great harbor. *Soil Conservation* 10, 1944 (3-5, 11-12).
- IV, 6     **631.459 : 551.41—Seitz, C. E.** Soil and water conservation investigations, 1936-1939. Progress report. *Va. Agric. Expt. Sta. Mtlng. Rept.* 1, 1940, pp. 54. E.S.R. 84 (589).
- VII, 2     **631.459 : 551.41—Krusekopf, H. H.** The effect of slope on soil erosion. *Missouri Agric. Expt. Sta. Res. Bull.* 363, 1943, pp. 24. E.S.R. 89 (417).
- 631.459 : 551.48—Cardwell, D. W.** Run-off from small agricultural watersheds. *Agric. Engng.* 21, 1940 (479-482).
- V, 1     **631.459 : 551.48—Jones, T. N.** 40-day loss: 14 tons soil per acre. *Miss. Farm Res.* 3, No. 9, 1940 (2). E.S.R. 84 (300).
- IV, 5     **631.459 : 551.48—Rao, A. S.** Soil erosion by surface run-off. *Madras Agric. J.* 28, 1940 (272-275). C.A. 35 (2256).
- 631.459 : 551.48—Hubbell, D. S.; Gardner, J. L.; Sherman, G. L.** Progress report of the Navajo Soil and Water Conservation Experiment Station, Mexican Springs, New Mexico 1934-1939. *SCS-ESR* 9, 1941, pp. 99. E.S.R. 86 (298).
- V, 1     **631.459 : 551.48—Kanitkar, N. V.; Daji, J. A.; Gokhale, V. N.** Surface run-off and soil erosion from arable lands in the Bombay-Deccan. *Indian J. Agric. Sci.* 11, 1941 (493-545).
- VI, 2     **631.459 : 551.48—Cooper, A. W.; Neal, J. H.** A method for determining the velocity of run-off water. *Agric. Engng.* 23, 1942 (385-387, 389).
- 631.459 : 551.48—Garstka, W. U.; Millar, C. E.** A year's record of rainfall run-off and soil erosion at Michigan State College. *Mich. Agric. Expt. Sta. Quart. Bull.* 24, 1942 (199-205).
- VII, 3     **631.459 : 551.48—Shamshin, A. S.; Nedosekina, T. V.** Surface run-off of thaw and erosion of soils under conditions of the central forest steppe, and measures for controlling them. *Shorn. Pam. W. R. Williams*, 1942 (335-343). [R.]
- VI, 1     **631.459 : 551.48—Stauffer, R. S.** Runoff, percolate, and leaching losses from some Illinois soils. *J. Amer. Soc. Agron.* 34, 1942 (830-835).
- 631.459 : 551.48—Azar, E.; Cardwell, D. W.** Run-off from small agricultural areas of Dunmore silt loam and related soils in the limestone valleys and upland section in the southeast. *Va. Agric. Expt. Sta. Tech. Bull.* 90, 1943, pp. 20.
- 631.459 : 551.48—Roe, H. B.; Snyder, C. G.** A logical modification of the rational formula for runoff from small agricultural areas. *Agric. Engng.* 24, 1943 (423-427).
- V, 2     **631.459 : 551.55—Chepil, W. S.; Milne, R. A.** Wind erosion of soil in relation to roughness of surface. *Soil Sci.* 52, 1941 (417-433).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.459 : 551.55—Chepil, W. S.; Milne, R. A.** Wind erosion of soils in relation to size and nature of the exposed area. *Sci. Agric.* 21, 1941 (479-487). IV, 4
- 631.459 : 551.55—Hanslow, H.; Hore, H. L.** Wind erosion. Some questions and answers. *J. Dept. Agric. Victoria* 40, 1942 (619-622).
- 631.459 : 551.55** **Journal of the Department of Agriculture of South Australia.** Wind erosion of soils. *J. Dept. Agric. S. Aust.* 44, 1941 (353-355). Hort. Abs. 12 (9). V, 4
- 631.459 : 551.55—Oliver, F. W.** Some remarks on desert dust-storms. *Min. Agric. Egypt* 1942, pp. 16. V, 4
- 631.459 : 551.55—Hubert, H.** A summary of knowledge of the sand and dust storms of French West Africa. *Bull. Amer. Met. Soc.* 24, 1943 (243-246). Biol. Abs. 18 (228).
- 631.459 : 551.55 : 016—Moats, R. W.** Wind erosion and sand dune control: a selected list of references. *U.S.D.A. Soil Conserv. Serv. Bibliogr.* 1, 1940, pp. 66. E.S.R. 83 (549).
- 631.459 : 551.55 : 581.5—Coldwell, A. E.; Loewen, P. R.; Whitfield, C. J.** The relation of various types of vegetative cover to soil drift. *J. Amer. Soc. Agron.* 34, 1942 (702-710). VI, 1
- 631.459 : 551.55 : 631.312.5—Chepil, W. S.** Utilization of crop residues for wind erosion control. *Sci. Agric.* 24, 1944 (307-319). VII, 4
- 631.459 : 551.55 : 631.416—Erdman, R. L.** Effects of wind erosion on the composition and fertility of some Alberta soils. *Sci. Agric.* 22, 1942 (533-545). V, 5
- 631.459 : 551.55 : 631.434—Chepil, W. S.** Relation of wind erosion to the dry aggregate structure of a soil. *Sci. Agric.* 21, 1941 (488-507). IV, 4
- 631.459 : 551.55 : 631.434—Chepil, W. S.** Measurement of wind erosiveness of soils by dry sieving procedure. *Sci. Agric.* 23, 1942 (154-160). VI, 2
- 631.459 : 551.55 : 631.434—Chepil, W. S.** Relation of wind erosion to the water-stable and dry elod structure of soil. *Soil Sci.* 55, 1943 (275-287). VI, 3
- 631.459 : 551.55 : 631.61—Gustafson, A. F.** The control of erosion on muck lands. *Cornell Agric. Expt. Sta. Expt. Bull.* 482, 1942, pp. 15. Biol. Abs. 17 (243). VI, 2
- 631.459 : 551.55 : 631.61—Thorfinnson, M. A.** Wind erosion control. *Minn. Univ. Agric. Ext. Div. Bull.* 235, 1942, pp. 15. Herb. Abs. 14 (8).
- 631.459 : 551.55 : 631.61—Kuron, H.** Measures of protection from wind erosion. *Mitt. Landw.* 58, 1943 (570-573). Herb. Abs. 14 (8).
- 631.459 : 551.577—Laws, J. O.** Recent studies in raindrops and erosion. *Agric. Engng.* 21, 1940 (431-433). IV, 1
- 631.459 : 551.577—Jones, T. N.** Loss of soil and water influenced by the intensity of rainfall. *Miss. Farm Res.* 4, No. 6, 1941 (8). E.S.R. 86 (17). V, 2
- 631.459 : 551.577—Ellison, W. D.** Studies of raindrop erosion. *Agric. Engng.* 25, 1944 (131-136, 181-182). VII, 4
- 631.459 : 551.577—Lamb, J., Jr.; Free, G. R.; Wilson, H. H., Jr.** The seasonal occurrence of soil erosion in New York as related to rainfall intensities. *J. Amer. Soc. Agron.* 36, 1944 (37-45). VII, 3



# BIBLIOGRAPHY OF SOIL SCIENCE

- VII, 1 **631.459 : 551.578.4**—Bogomolov, D. V. Control of soil erosion. *Pedology* No. 3, 1943 (49-64). [R.e.]
- 631.459 : 581.144.2**—Anand, P. Root system of plants of eroded areas in Hoshiapur Siwaliks. *Proc. Indian Sci. Cong.* 28, No. 38, 1942. Biol. Abs. 16 (1869).
- 631.459 : 581.5**—Graham, E. H. Soil erosion as an ecological process. *Bull. Ecol. Soc. Amer.* 21, 1940 (38).
- V, 3 **631.459 : 581.5**—Johnson, W. M.; Nièderhof, C. H. Some relationships of plant cover to run-off, erosion, and infiltration on granitic soils. *J. Forestry* 39, 1941 (854-858). Biol. Abs. 16 (319).
- VII, 1 **631.459 : 581.5**—Lyford, W. H., Jr. Run-off erosion and methods of control. *N.H. Agric. Expt. Sta. Bull.* 345, 1942 (31-33). E.S.R. 89 (372).
- VI, 2 **631.459 : 581.5**—Warner, R. M.; Aikman, J. M. The relation of secondary plant succession to soil and water conservation. *Iowa St. Coll. J. Sci.* 17, 1943 (175-189).
- 631.459 : 581.5**—Altpeter, L. S. Use of vegetation in control of streambank erosion in northern New England. *J. Forestry* 42, 1944 (99-107). For. Abs. 6 (7).
- V, 4 **631.459 : 599.32**—Scheffer, P. M. Beaver on trial. *Soil Conservation* 7, 1942 (239-241).
- IV, 4 **631.459 : 616.936**—Ross, G. R.; Aylen, D. Erosion and malaria. *Rhod. Agric. J.* 38, 1941 (173-191).
- 631.459 : 625.7 8**—Johnson, J. W.; Brown, H. A. Principles affecting the control of erosion in road cuts and roadside ditches. *Soil Conservation* 7, 1941 (138-140).
- 631.459 : 627.51**—Almeida, J. Marques de. The flood problem. *Rev. Agron. Lisboa* 28, 1940 (1-10). Herb. Abs. 11 (42).
- V, 6 **631.459 : 627.51**—Fairbairn, W. A. A note on river erosion. *Farm and Forest* 2, 1941 (93-94).
- V, 5 **631.459 : 631.312.5**—Duley, F. L.; Russel, J. C. Crop residues for protecting row-crop land against runoff and erosion. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (484-487).
- 631.459 : 631.312.5**—Duley, F. L.; Russel, J. C. Using crop residues for soil defense. *U.S.D.A. Misc. Pub.* 494, 1942, pp. 16.
- VII, 1 **631.459 : 631.312.5**—Duley, F. L.; Russel, J. C. Effect of stubble mulching on soil erosion and runoff. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (77-81). Biol. Abs. 17 (2178).
- V, 3 **631.459 : 631.416**—Fletcher, J. E.; Beutner, E. L. Erodibility investigations on some soils of the Upper Gila watershed. *U.S.D.A. Tech. Bull.* 794, 1941, pp. 31.
- 631.459 : 631.416**—Knoblauch, H. C.; Kolodny, L.; Brill, G. D. Erosion losses of major plant nutrients and organic matter from Collington sandy loam. *Soil Sci.* 53, 1942 (369-378).
- V, 6 **631.459 : 631.416**—Rogers, H. T. Plant nutrient losses by erosion from a corn, wheat, clover rotation on Dunmore silt loam. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (263-271).
- VI, 1 **631.459 : 631.416**—Whitt, D. M.; Swanson, C. L. W. Effect of erosion on fertility changes in the Shelby loam profile. *J. Agric. Res.* 65, 1942 (283-298).
- VII, 1 **631.459 : 631.416**—Neal, O. R. The influence of soil erosion on fertility losses and on potato yield. *Amer. Potato J.* 20, 1943 (57-64). Biol. Abs. 17 (1958).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.459 : 631.416—Neal, O. R. Removal of nutrients from the soil by crops and erosion. *J. Amer. Soc. Agron.* 36, 1944 (601-607). VII, 4
- 631.459 : 631.417—Martin, J. P. The organic matter in Collington sandy loam and in the eroded material. *Soil Sci.* 52, 1941 (435-443). V, 2
- 631.459 : 631.43—Setzer, J. Physical properties of the soils of the State of São Paulo in relation to the fight against erosion. *Rev. Agric. Piracicaba* 15, No. 3-4, 1940 (99-113). [Pt.] IV, 4
- 631.459 : 631.43—Zakharov, P. G. Physico-chemical properties of eroded forest-steppe soils. *Dokl. Akad. S.-Kh. Nauk* No. 1, 1941 (32-35). [R.] V, 1
- 631.459 : 631.435—Gerdel, R. W.; Paschall, A. H. Grouping of soil types to indicate erosion potentialities. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (372-374). IV, 1
- 631.459 : 631.435—Slater, C. S.; Carleton, E. A. Variability of eroded material. *J. Agric. Res.* 65, 1942 (209-219). VI, 1
- 631.459 : 631.435.5—Lamb, J., Jr.; Chapman, J. E. Effect of surface stones on erosion, evaporation, soil temperature, and soil moisture. *J. Amer. Soc. Agron.* 35, 1943 (567-578). VI, 4
- 631.459 : 631.44—Norton, F. A. Classes of land according to use capability. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (378-381).
- 631.459 : 631.445.5—Thorntwaite, C. W.; Sharpe, C. F. S.; Dosch, E. F. Climate and accelerated erosion in the arid and semi-arid Southwest, with special reference to the Polacca Wash drainage basin, Arizona. *U.S.D.A. Tech. Bull.* 808, 1942, pp. 134. V, 6
- 631.459 : 631.445.7—Pendleton, R. L. Soil erosion in the tropics. *J. Forestry* 38, 1940 (753-762).
- 631.459 : 631.445.7—Pendleton, R. L. Soil erosion as related to land utilization in the humid tropics. *Proc. Sixth Pacific Sci. Cong.* 4, 1940 (905-920). *Biol. Abs.* 16 (1628). *Hort. Abs.* 12 (118).
- 631.459 : 631.46—Norman, A. G.; Newman, A. S. Some effects of sheet erosion on soil microbiological activity. *Soil Sci.* 52, 1941 (31-46). IV, 6
- 631.459 : 631.466.3—Booth, W. E. Algae as pioneers in plant succession and their importance in erosion control. *Ecology* 22, 1941 (34-46). IV, 3
- 631.459 : 631.468—Pidgeon, I. M.; Ashby, E. Studies in applied ecology. I. A statistical analysis of regeneration following protection from grazing. *Proc. Linn. Soc. N.S.W.* 65, 1940 (123-143). IV, 1
- 631.459 : 631.47—Cohee, M. H. Self-governing principles of soil conservation districts. *Soil Conservation* 6, 1940 (156-160, 164).
- 631.459 : 631.47—Coulter, J. W. The relation of soil erosion to land utilization in the territory of Hawaii. *Proc. Sixth Pacific Sci. Cong.* 4, 1940 (897-901). *Herb. Abs.* 12 (121).
- 631.459 : 631.47—Rule, G. K. Working plans for permanent farms. *U.S.D.A. Misc. Pub.* 411, 1940, pp. 41.
- 631.459 : 631.47—Rule, G. K. Soil conservation districts in action on the land. *U.S.D.A. Misc. Pub.* 448, 1941, pp. 25.
- 631.459 : 631.47—Soil Conservation. Soil conservation districts. *Soil Conservation* 6, 1941 (189-240).
- 631.459 : 631.47—Campbell, J. P. An agricultural movement marches on. *Soil Conservation* 7, 1942 (182-196). V, 4

## BIBLIOGRAPHY OF SOIL SCIENCE

- V, 3     **631.459 : 631.544.7—Borst, H. L.; Woodburn, R.** The effect of mulching and methods of cultivation on run-off and erosion from Muskingum silt loam. *Agric. Engng.* 23, 1942 (19-22).
- VI, 2     **631.459 : 631.544.7 Borst, H. L.; Woodburn, R.** Effect of mulches and surface conditions on the water relations and erosion of Muskingum soils. *U.S.D.A. Tech. Bull.* 825, 1942, pp. 16. E.S.R. 88 (17).
- V, 3     **631.459 : 631.544.7 Post, F. A.** Discussion of the paper on mulching and erosion by Borst and Woodburn. *Agric. Engng.* 23, 1942 (22, 24).
- IV, 1     **631.459 : 631.557 Morse, H. H.; Barre, R. C.** A method for calculating the amount a farmer can afford to invest in erosion control measures. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (428-430).
- 631.459 : 631.557 Wheetting, L. C.** The significance of natural erosion. *N.-W. Sci.* 14, No. 1, 1940 (11-13). E.S.R. 83 (454).
- V, 2     **631.459 : 631.557 Uhlend, R. E.** Better harvests through conservation farming. *U.S.D.A. Soil Conserv. Serv.* 1941, pp. 10. E.S.R. 85 (591).
- VII, 1     **631.459 : 631.557 Bobko, E. V.** Erosion as an unaccounted part of the nutrient balance in soil. *Pedology* No. 3, 1943 (41-48). [R.e.]
- 631.459 : 631.58 Hays, O. E.; Clark, N.** Cropping systems that help control erosion. *Wis. Agric. Expt. Sta. Bull.* 452, 1941, pp. 23.
- V, 4     **631.459 : 631.58 Lillard, J. H.; Rogers, H. T.; Elson, J.** Effects of slope, character of soil, rainfall, and cropping treatments on erosion losses from Dunmore silt loam. *Va. Agric. Expt. Sta. Tech. Bull.* 72, 1941, pp. 32. E.S.R. 86 (447).
- VI, 2     **631.459 : 631.58 Horner, G. M.** Report of the soil and water conservation experiment station. *Wash. Agric. Expt. Sta. Bull.* 425, 1942 (102-104).
- 631.459 : 631.58 Ingham, A. G.** Plowless farming. *Soil Conservation* 9, 1943 (39-41, 45).
- VII, 2     **631.459 : 631.58 Wooley, J. C.** Fertility losses as a basis for erosion control planning. *Agric. Engng.* 24, 1943 (377-379).
- VII, 4     **631.459 : 631.589 Sampson, A. W.** Effect of chaparral burning on soil erosion and on soil-moisture relations. *Ecology* 25, 1944 (171-191).
- 631.459 : 631.61 Parker, J. S.; Dickson, W.; Hopkins, E. S.** Methods of conserving run-off water and controlling soil erosion. *Canad. Soc. Tech. Agric. Rev.* No. 23, 1939 (71-77). Herb. Abs. 10 (265).
- 631.459 : 631.61 Roe, H. B.; Neal, J. H.** Soil erosion control. *Minn. Univ. Agric. Expt. Div. Bull.* 201, 1939, pp. 36. Hort. Abs. 12 (10).
- 631.459 : 631.61 Bennett, H. H.** Soil and water conservation in the southern Great Plains. *Soil Sci.* 50, 1940 (435-448).
- 631.459 : 631.61 De Szabo, J.** Anti-erosion measures for the side lines of dongas. *Farm. S. Africa* 15, 1940 (420).
- IV, 1     **631.459 : 631.61 Dickson, R. E.; Langley, B. G.; Fisher, C. E.** Water and soil conservation experiments at Spur, Texas. *Tex. Agric. Expt. Sta. Bull.* 587, 1940, pp. 67.

# FERTILIZERS AND GENERAL AGRONOMY

- 631.459 : 631.61**—Wilson, R. E. Use of brush for erosion control. *Soil Conservation* 6, 1940 (152-153).
- 631.459 : 631.61**—Ehrenberg, P. Successful and unsuccessful trials with living plants for erosion control in Silesia. *ForschDienst.* 12, 1941 (369-383). [G.]
- 631.459 : 631.61**—Enlow, C. R. Measures and practices for controlling erosion and conserving water. *Mo. Bull. Agric. Sci. Pract.* 32, 1941 (379T-384T). Hort. Abs. 12 (77).
- 631.459 : 631.61**—Freire, S. L. C. Soil erosion. *Secretaria da Agricultura, S. Paulo*, 1941, pp. 37. [Pt.] VI, 4
- 631.459 : 631.61**—Smith, D. D. Interpretation of soil conservation data for field use. *Agric. Engng.* 22, 1941 (173-175). Herb. V, 1  
Abs. 11 (197).
- 631.459 : 631.61**—Aylen, D. Gully control: some recent successes. *Rhod. Agric. J.* 39, 1942 (73-87).
- 631.459 : 631.61**—Bennett, H. H. Soil erosion and its control. *Proc. Eighth Amer. Sci. Cong.* (1940) 5, 1942 (331-347). Biol. Abs. 17 (2410).
- 631.459 : 631.61**—Jacks, G. V. Prospects for soil conservation. *Endeavour* 1, 1942 (33-35).
- 631.459 : 631.61**—Knapp, K. H.; Libby, J. A. Erosion of stream banks, its prevention and correction. *U.S.D.A. Soil Conserv. Serv. Reg. Bull.* 78, 1942, pp. 32. For. Abs. 5 (163).
- 631.459 : 631.61**—McDiarmid, R. W. Gully reclamation. Experiences at Cowra Experiment Farm. *Agric. Gaz. N.S.W.* 53, 1942 (208-210).
- 631.459 : 631.61**—Thornton, R. W. Anti-erosion measures and reclamation of eroded land. *Trans. Min. Proc. S. Afric. Soc. Civ. Engngs.* 1942, pp. 28.
- 631.459 : 631.61**—Waring, P. A. Teamwork to save soil and increase production. *U.S.D.A. Misc. Pub.* 486, 1942, pp. 66. E.S.R. 87 (639).
- 631.459 : 631.61**—Bally, W. International collaboration in the field of soil conservation. *Chron. Bot.* 7, 1943 (429-430).
- 631.459 : 631.61**—Clark, M. W. Planning farms for management of runoff water. *Agric. Engng.* 24, 1943 (197-198).
- 631.459 : 631.61**—Daniel, H. A.; Elwell, H. M.; Cox, M. B. Investigations in erosion control and reclamation of eroded land at the Red Plains Conservation Experiment Station, Guthrie, Okla., 1930-40. *U.S.D.A. Tech. Bull.* 837, 1943, pp. 94. VI, 3
- 631.459 : 631.61**—Sykes, E. F. Ravine reclamation—the engineering end. *Indian Farm.* 4, 1943 (392-396).
- 631.459 : 631.61**—Hill, H. O.; Peavy, W. J.; McCall, A. G., et al. Investigations in erosion control and reclamation of eroded land at the Blackland Conservation Experiment Station, Temple, Tex., 1931-41. *U.S.D.A. Tech. Bull.* 859, 1944, pp. 109. VII, 3
- 631.459 : 631.61**—Horner, G. M.; McCall, A. G.; Bell, F. G. Investigations in erosion control and the reclamation of eroded land at the Palouse Conservation Experiment Station, Pullman, Wash., 1931-42. *U.S.D.A. Tech. Bull.* 860, 1944, pp. 83. VII, 4
- 631.459 : 631.61**—Stenhouse, A. S. Agriculture in the Matengo highlands. *E. Afric. Agric. J.* 10, 1944 (22-24). VII, 4

# BIBLIOGRAPHY OF SOIL SCIENCE

- VII, 3    **631.459 : 631.61**—Wall, P. F. Soil reclamation with a minimum of machinery. *Farm. Week. S. Africa* 66, 1944 (1030-1031).
- 631.459 : 631.61 : 33**—Blosser, R. H. Some economic and social implications of the soil and water conservation program in the Little Mill Creek Watershed, Coshocton County, Ohio. *Ohio St. Univ. Dept. Rural Econ. Mimeo. Bull.* 128, 1940, pp. 36. E.S.R. 86 (541).
- 631.459 : 631.61 : 33**—McNall, P. E. Economic phases in soil erosion control. *J. Farm Econ.* 22, 1940 (613-620). Herb. Abs. 11 (280).
- 631.459 : 631.61 : 33**—Bunce, A. C.; Collier, G. W. A method of estimating the economic effects of planned conservation on an individual farm. *U.S.D.A. Misc. Pub.* 463, 1942, pp. 28. E.S.R. 86 (847).
- V, 6    **631.459 : 631.61 : 33**—Finnell, H. H. Conservation pays off in the Plains country. *Soil Conservation* 8, 1942 (3-6).
- 631.459 : 631.61 : 33**—Uhland, R. E. The facts about conservation farming and yields. *Soil Conservation* 7, 1942 (back cover, 266-269, 276).
- VII, 3    **631.459 : 631.61 : 699**—Masfield, G. B. Soil erosion around buildings, and its prevention. *E. Afric. Agric. J.* 9, 1944 (146-150).
- 631.459 : 631.613**—Breadon, G. W. D. Note on terracing for soil conservation and land reclamation. *Indian Forester* 66, 1940 (485-492). For. Abs. 2 (188).
- 631.459 : 631.613**—Breadon, G. W. D. Soil conservation by terracing and grading. *Indian Forester* 66, 1940 (430-435). For. Abs. 2 (188).
- IV, 2    **631.459 : 631.613**—Iovenko, N. G. Agrotechnical measures for drought and erosion control on chernozem soils. *Pedology* No. 6, 1940 (50-56). [R.]
- V, 1    **631.459 : 631.613**—Gonggrijp, L. Erosion experiment. *Tectona* 34, 1941 (200-220). Bul. Abs. 15 (2088).
- 631.459 : 631.613**—Masfield, G. B. Narrow-base ridges for erosion control. *E. Afric. Agric. J.* 7, 1942 (167-171).
- V, 3    **631.459 : 631.613**—Zingg, A. W. Soil movement within the surface profile of terraced lands. *Agric. Engng.* 23, 1942 (93-94).
- VII, 2    **631.459 : 631.613**—Bogomolov, D. V. Surface run-off and erosion as influenced by tillage along the slope and along the contour. *Pedology* No. 6, 1943 (42-46). [R.e.]
- VI, 4    **631.459 : 631.613**—Close, A. M. Soil erosion. *Rhod. Agric. J.* 40, 1943 (193-198).
- 631.459 : 631.613**—Fick, J. C. Safeguarding lands against erosion. *Farm. S. Africa* 18, 1943 (649-650).
- VII, 2    **631.459 : 631.613**—Ramser, C. E. Grassed waterways for handling runoff from agricultural areas. *Agric. Engng.* 24, 1943 (412-415, 416).
- 631.459 : 631.613**—Welch, E. G. Erosion control on slopes steeper than 12 per cent. *Agric. Engng.* 25, 1944 (123-124).
- 631.459 : 631.62**—Ricker, C. C., et al. Controlling erosion in farm drainageways. *Agric. Engng.* 23, 1942 (136-137). E.S.R. 87 (429).
- IV, 1    **631.459 : 631.81**—Bennett, H. H. The use of fertilizers in soil conservation. *Better Crops with Plant Food* 24, No. 7, 1940 (6-9).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.459 : 631.85—Dickerson, W. H., Jr.; Rogers, H. T.** Surface run-off and erosion from permanent pastures in southwest Virginia as influenced by application of triple superphosphate. *Va. Agric. Expt. Sta. Tech. Bull.* 77, 1941, pp. 26. E.S.R. 86 (746). IV, 1
- 631.459 : 631.86/7—Neal, O. R.** Some concurrent and residual effects of organic matter additions on surface run-off. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (420-425). V, 5
- 631.459 : 631.876—Thornburn, T. H.** The effect of certain wetting agents on the water intake and erodibility of soils. *Univ. Microfilm Pub.* 301, 1941, pp. 52. Biol. Abs. 16 (1231). IV, 1
- 631.459 : 632.7—Dibble, C. B.** Grasshoppers, a factor in soil erosion in Michigan. *J. Econ. Ent.* 33, 1940 (498-499). VII, 2
- 631.459 : 632.7—Andrewartha, H. G.** The significance of grasshoppers in some aspects of soil conservation in South Australia and Western Australia. *J. Dept. Agric. S. Aust.* 46, 1943 (314-322).
- 631.459 : 633.2—McTaggart, A.** Grass types suited to soil erosion control. *Aust. J. Coun. Sci. Indust. Res.* 12, 1939 (155-157). Biol. Abs. 15 (514).
- 631.459 : 633.2—Kuprianov, I.** Perennial herbaceous plants on the Black Sea coast of the Caucasus. *Sov. Subtrop.* No. 4, 1940 (42-44). Hort. Abs. 10 (278).
- 631.459 : 633.2.03—Bell, F. G.** The relation of grassland farming to soil and water conservation. *Agric. Engng.* 23, 1942 (247-248). VI, 2
- 631.459 : 633.2.03—Hamilton, C. L.** The relation of water management to grassland farming. *Agric. Engng.* 23, 1942 (245-246). E.S.R. 88 (107).
- 631.459 : 633.2.03—Pershina, M. N.** The nature of erosion processes in the central part of the Kislovod region, and the role of vegetation in their control. *Sborn. Pam. Acad. W. R. Williams*, 1942 (325-333). [R.] VII, 3
- 631.459 : 633.2.03—Fulte, J. L.** Some factors affecting the establishment of perennial grass for erosion control in eastern Colorado. *J. Amer. Soc. Agron.* 36, 1944 (615-625). VII, 4
- 631.459 : 633.2.03-1.58—Bailey, R. W.** The role of range management in erosion control. *Idaho Forester* 21, 1939 (9, 38). Biol. Abs. 16 (981).
- 631.459 : 633.2.03-1.58—Chapline, W. R.** The place of range management in soil erosion in the western states. *Idaho Forester* 21, 1939 (7, 8, 60). Biol. Abs. 16 (982).
- 631.459 : 633.2.03-1.58—Van Doren, C. A.; Burlison, W. L.; Gard, L. E., et al.** Effect of soil treatment and grazing management on the productivity, erosion, and run-off from pasture land. *J. Amer. Soc. Agron.* 32, 1940 (877-887). Biol. Abs. 15 (523).
- 631.459 : 633.2.03-1.58—Reid, E. H.** Plant succession on sub-alpine grasslands as affected by livestock management. *N.-W. Sci.* 15, 1941 (3-5). Biol. Abs. 15 (1510). V, 1
- 631.459 : 633.2.03 1.58—Ehrenberg, P.** The ploughing-up policy and soil erosion. *ForschDienst.* 13, 1942 (291-300). [G.] VI, 2
- 631.459 : 633.2.03-1.58—Johnstone - Wallace, D. B.; Andrews, J. S.; Lamb, J., Jr.** The influence of periodic close grazing and pasture fertilization upon erosion control. *J. Amer. Soc. Agron.* 34, 1942 (963-974).

## BIBLIOGRAPHY OF SOIL SCIENCE

- VI, 3    **631.459 : 633.2.03-1.58**—Haynes, J. L.; Neal, O. R. The effect of certain pasture practices on runoff and production of protective cover. *J. Amer. Soc. Agron.* 35, 1943 (205-211).
- 631.459 : 633.28**—Rogler, G. A. Russian wild-rye, *Elymus junceus* Fisch. *J. Amer. Soc. Agron.* 33, 1941 (266-268).
- IV, 5    **631.459 : 633.37**—Atkins, O. A.; Young, W. C. The partridge pea, *Chamaecrista fasciculata*, a promising plant for soil conservation. *J. Amer. Soc. Agron.* 33, 1941 (471-472).
- V, 1    **631.459 : 634.9**—Badoux, H. Notes on afforestation in the Canton of Fribourg since 1890. *J. Forest. Suisse* 92, 1941 (49-52). *Biol. Abs.* 15 (1806).
- IV, 5    **631.459 : 634.9**—Buhler, E. O. Forest and watershed fires in Utah. *Utah Agric. Expt. Sta. Circ.* 115, 1941, pp. 27.
- 631.459 : 634.9**—Preston, J. F. Farm forestry as influenced by the soil conservation programme. *J. Forestry* 39, 1941 (91-94). *Herb. Abs.* 11 (280).
- 631.459 : 634.9**—Stebbing, E. P. Forests and erosion. *J. Roy. Agric. Soc.* 1941 (27-47).
- VI, 2    **631.459 : 636.39**—Staples, R. R.; Hornby, R. M. A study of the comparative effect of goats and cattle on a mixed grass-bush pasture. *E. Afric. Agric. J.* 8, 1942 (62-70).
- VII, 3    **631.459.005**—Ellison, W. D. Two devices for measuring soil erosion. *Agric. Engng.* 25, 1944 (53-55).

## 631.46 SOIL MICROBIOLOGY

- IV, 5    **631.461**—Aquino, D. I.; Ancheta, S. T. A study of certain chemical and biological properties of different soil media. *Philipp. Agrist.* 29, 1940 (527-538). *C.A.* 35 (2256).
- 631.461**—Smith, N. R. The production of acetylmethyl-carbinol by aerobic spore-forming bacteria from soil. *J. Bact.* 39, 1940 (97). *C.A.* 34 (7511).
- IV, 2    **631.461**—Waksman, S. A.; Woodruff, H. B. Survival of bacteria added to soil and the resultant modification of soil population. *Soil Sci.* 50, 1940 (421-427).
- IV, 5    **631.461**—Lochhead, A. G. The concept of bacterial equilibrium in soil and its possible application to soil problems. *Canad. Pub. Health J.* 32, 1941 (80-81). *C.A.* 35 (3751).
- VI, 3    **631.461**—Lochhead, A. G.; Chase, F. E. Qualitative studies of soil microorganisms: V. Nutritional requirements of the predominant bacterial flora. *Soil Sci.* 55, 1943 (185-195).
- VII, 4    **631.461**—Bodily, H. L. The activity of microorganisms in the transformation of plant materials in soil under various conditions. *Soil Sci.* 57, 1944 (341-349).
- IV, 6    **631.461 : 525.5**—Klauss, D. Soil micro-organisms and their activity at different seasons and different soil reactions. *Bodenk. Pflernähr.* 21-22, 1940 (365-406). *ForschDienst.* 11 (52). [G.]
- IV, 2    **631.461 : 541.134.5**—Geller, I. A. Oxidation-reduction processes in soil inoculation with micro-organisms. *Nauch. Zap. Sakh. Prom. Agron.* No. 1, 1939 (54-60). *Pedology* No. 6, 1940 (125).
- V, 1    **631.461 : 546.27**—Hanna, W. J.; Purvis, E. R. Effect of borax and lime on activity of soil micro-organisms in Norfolk fine sandy loam. *Soil Sci.* 52, 1941 (275-281).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.461 : 546.711**—Barker, H. A.; Broyer, T. C. Notes on the influence of micro-organisms on growth of squash plants in water culture with particular reference to manganese nutrition. *Soil Sci.* 53, 1942 (467-477). C.A. 36 (6194). Biol. Abs. 16 (2091). B.C.A.A. III, 1942 (862).
- 631.461 : 546.711**—Marsh, A. W.; Bollen, W. B. Effect of manganese on the micro-flora and respiration of some Oregon soils. *J. Amer. Soc. Agron.* 35, 1943 (895-900). VII, 1
- 631.461 : 551.481**—Beaver, W. C. Bacterial activities in the subaquatic soils of Lake Erie. *Ohio J. Sci.* 42, 1942 (91-98). C.A. 36 (4648). Biol. Abs. 16 (2061).
- 631.461 : 551.6**—Vernadsky, V. I. The importance of the soil atmosphere and its biogenic structure. *Pedology* No. 4-5, 1944 (137-143). [R.] VII, 4
- 631.461 : 577.15.04**—Lochhead, A. G.; Chase, F. E. Bacterial growth factors in soil. *Science* 96, 1942 (387). C.A. 37 (711).
- 631.461 : 581.144.2**—Isakova, A. A. Selection by plant roots of specific microflora from the soil microbial complex. *C.R.Acad. Sci. (U.S.S.R.)* 25, 1939 (317-319). *Pedology* No. 6, 1940 (130). IV, 2
- 631.461 : 581.144.2**—Krasil'nikov, N. A.; Garkina, N. R. Effect of bacteria on the growth of isolated plant roots. *Mikrobiologia* 8, 1939 (952-958). C.A. 35 (3673). IV, 5
- 631.461 : 581.144.2**—Bogopolsky, M. D. Microbiological investigation of soil by the soil-dish method in studying the processes of mineralization of the soil and in the root system of plants. *Mikrobiol. Zh.* 6, 1940 (141-173). C.A. 35 (2261). [R.e.] IV, 4
- 631.461 : 581.144.2**—Clark, F. E. Effects of soil amendments upon bacterial populations associated with roots of wheat. *Trans. Kans. Acad. Sci.* (1939) 42, 1940 (91-96). Biol. Abs. 14 (1327). IV, 2
- 631.461 : 581.144.2**—Clark, F. E. Notes on types of bacteria associated with plant roots. *Trans. Kans. Acad. Sci.* 43, 1940 (75-84). Biol. Abs. 15 (973).
- 631.461 : 581.144.2**—Krasil'nikov, N. A. Microflora of the rhizosphere and its influence on growth and yield of crops. *Khim. Sotsial. Zemled.* No. 7, 1940 (36-42). [R.]
- 631.461 : 581.144.2**—Krasil'nikov, N. A. The microbiological processes in the rhizosphere of plants. *Probl. Sorel. Pochvoved.* 11, 1940 (159-165). [R.] VII, 3
- 631.461.581.144.2**—Timonin, M. I. The interaction of higher plants and soil micro-organisms. II. Study of the microbial population of the rhizosphere in relation to resistance of plants to soil-borne diseases. *Canad. J. Res.* 18C, 1940 (444-456). IV, 1
- 631.461 : 581.144.2**—Timonin, M. I. The interaction of higher plants and soil micro-organisms: III. Effect of by-products of plant growth on activity of fungi and actinomycetes. *Soil Sci.* 52, 1941 (395-413). V, 2
- 631.461 : 581.144.2**—Timonin, M. I. Microbial activity as influenced by root excretions. *Chyon. Bot.* 6, 1941 (440). R.A.M. 21 (256). V, 4
- 631.461 : 581.144.2**—Linford, M. B. Methods of observing soil flora and fauna associated with roots. *Soil Sci.* 53, 1942 (93-103). V, 4



# BIBLIOGRAPHY OF SOIL SCIENCE

- VI, 4    **631.461 : 581.144.2**—Katznelson, H.; Richardson, L. T. The microflora of the rhizosphere of tomato plants in relation to soil sterilization. *Canad. J. Res.* 21C, 1943 (249-255).
- VI, 3    **631.461 : 631.414.3**—Dikusar, M. M. "Absorption" of bacteria by soil and its influence on microbiological processes therein. *Mikrobiologia* 10, 1941 (813-825). Biol. Abs. 17 (1046). [R.e.]
- V, 5    **631.461 : 631.415.1**—McCalla, T. M. Why does H<sup>+</sup> become toxic to soil bacteria? *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (165-167).
- VI, 2    **631.461 : 631.416**—Fehér, D.; Frank, M.; Szelényi, F. Experimental investigations into the effect of micro-organisms upon the dynamic relationships of the easily-soluble phosphorus, potash and nitrogen compounds of soil. *Mitt. Bewässer. Auslandsh.* 9-10, 1941 (114-127). *ForschDienst.* 14 (20).
- IV, 1    **631.461 : 631.417**—Vandecaveye, S. C.; Katznelson, H. Microbial activities in soil: VI. Microbial numbers and nature of organic matter in various genetic soil types. *Soil Sci.* 50, 1940 (295-311).
- VI, 1    **631.461 : 631.43**—Ruschmann, G.; Pozdena, L. Relations between physical and biological "sickness" of soil. *Zbl. Bakt.* 11, 105, 1942 (213-233). [G.]
- IV, 1    **631.461 : 631.432.2**—James, N.; Sutherland, M. L. Fluctuations in numbers of bacteria in soil. *Canad. J. Res.* 18C, 1940 (435-443). -
- VI, 4    **631.461 : 631.432.2**—James, N.; Sutherland, M. L. Variation in numbers of bacteria in two plots. *Canad. J. Res.* 21C, 1943 (119-133).
- VII, 2    **631.461 : 631.432.3**—Khudiakov, Ya. P. The action of micro-organisms on soil colloids. *Pedology* No. 7, 1943 (48-55). [R.e.]
- IV, 2    **631.461 : 631.436**—Mishustin, E. N. Ecological-geographical variability of soil bacteria. *Priroda* 4, 1939 (27-36). *Pedology* No. 6, 1940 (123).
- IV, 3    **631.461 : 631.44**—Bylinkina, V. N. Soil microflora as a component of the bio-organic mineral complex of soils. *Mikrobiologia* 9, 1940 (129-142). *C.A.* 35 (250). [R.e.]
- 631.461 : 631.445.7**—Driessen, F. C. Some remarks on soil bacteriology in the tropics. *Bergcultures* 15, 1941 (903-911). [Du.]
- V, 4    **631.461 : 631.453**—Waksman, S. A.; Woodruff, H. B. The occurrence of bacteriostatic and bactericidal substances in the soil. *Soil Sci.* 53, 1942 (233-239).
- IV, 4    **631.461 : 631.459**—Wilson, J. K.; Schubert, H. J. The microflora in the soil and in the run-off from the soil. *J. Amer. Soc. Agron.* 32, 1940 (833-841). Biol. Abs. 15 (473).
- V, 5    **631.461 : 631.472**—Newman, A. S.; Norman, A. G. The activity of the microflora in various horizons of several soil types. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (187-194).
- VI, 4    **631.461 : 631.472**—Newman, A. S.; Norman, A. G. The activity of subsurface soil populations. *Soil Sci.* 55, 1943 (377-391).
- V, 1    **631.461 : 631.5**—Dadykin, V. P. Diagnosis of the degree of cultivation of the Kola peninsula soils by means of thermophilic bacteria. *Dokl. Akad. S.-Kh. Nauk* No. 3, 1941 (42-44). [R.]

# FERTILIZERS AND GENERAL AGRONOMY

- 631.461 : 631.547.2**—Krasil'nikov, N. A. The effect of micro-organisms on plant growth. *Mikrobiologia* 9, 1940 (395-417). C.A. 35 (4061).
- 631.461 : 631.58**—Mitchell, R. B.; Adams, J. E.; Thom, C. Microbial responses to organic amendments in Houston black clay. *J. Agric. Res.* 63, 1941 (527-534).
- 631.461 : 631.58**—James, N.; Sutherland, M. L. Individual plot studies of variation in numbers of bacteria in soil. I. Response to cropping. II. The errors of the procedure. *Canad. J. Res.* 20C, 1942 (435-443, 444-456).
- 631.461.1/3**—Carlyle, R. E. Measurement of the heat liberated in the biological decomposition of plant materials. *Iowa St. Coll. J. Sci.* 15, 1940 (60-62).
- 631.461.1/3**—Giesecke, F.; Mantel, E. Investigations on the rotting and humification processes of the filling material of forcing frames. (A comparison of horse manure and artificial manure.) *Bodenk. PflErnähr.* 19, 1940 (253-264). C.A. 37 (5820). VII, 1
- 631.461.1/3**—Smith, F. B. Factors affecting the decomposition of organic matter in soils under Florida conditions. *Proc. Soil Sci. Soc. Florida* 2, 1940 (125-128). C.A. 36 (2661).
- 631.461.1/3**—Springer, U. Humification and decomposition and their estimation in peats, stable manure and other organic materials. *Bodenk. PflErnähr.* 18, 1940 (129-167). C.A. 35 (256). IV, 3
- [G.]
- 631.461.1/3**—Scheffer, F. Humus accumulation in static manurial experiments. *ForschDienst. Sonderh.* 17, 1941 (83-85). [G.] VII, 3
- 631.461.1/3**—Swanback, T. R. Ammonification and nitrification of certain fertilizer materials. *Conn. Agric. Expt. Sta. Bull.* 444, 1941 (232-244). C.A. 36 (3312). VI, 2
- 631.461.1/3**—Vassiliades, C. The decomposition of hexamethylenetetramine in various solutions and soils, with special reference to the acidity of the medium. *Bodenk. PflErnähr.* 25, 1941 (150-163). V, 2
- [G.]
- 631.461.1/3**—Marten, E. A.; Pohlman, G. G. Forest soil studies: II. Changes in microflora and chemical composition of decomposing tree leaves. *Soil Sci.* 54, 1942 (67-77). V, 6
- 631.461.1/3 : 547.458.84**—Guha Sircar, S. S.; De, S. C.; Bhowmick, H. D. Microbiological decomposition of plant materials. II. Changes in the methoxyl and nitrogen content of lignin of rice straw during its decomposition by microorganisms. *Indian J. Agric. Sci.* 10, 1940 (152-157). C.A. 34 (7053). IV, 2
- 631.461.1/3 : 577.16**—Starkey, R. L. Transformation of riboflavin and pantothenic acid during decomposition of plant materials. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (237-242). Biol. Abs. 17 (1939). VII, 1
- 631.461.1/3 : 631.414.324**—Smith, F. B.; Whitehead, T., Jr. The effect of substituted cation in the soil complex on the decomposition of organic matter. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (248-253). IV, 6
- 631.461.1/3 : 631.415.1**—Khan Denkho. Influence of the reaction of the medium on the decomposition of organic matter with different carbon-nitrogen ratios. *Trans. Dokuchaev Inst.* 23, 1940 (139-145). [R.e.] IV, 5

## BIBLIOGRAPHY OF SOIL SCIENCE

- VII, 3    **631.461.1 3 : 631.416**—Yartseva, A. K. Changes in the chemical composition of the carbonate clay soils under the influence of the decomposition products of black wormwood (*Artemisia pauciflora*) and of feathergrass (*Stipa pennata*). *Trudy TSKhA* No. 5, 1940 (3-12). C.A. 37 (4842).
- IV, 4    **631.461.1 3 : 631.417.4**—Doughty, J. L. The rate of decomposition of plant roots. *Sci. Agric.* 21, 1941 (429-432).
- VI, 1    **631.461.1 3 : 631.417.4**—Parbery, N. H.; Swaby, R. J. The efficiency of organic materials in supplying nitrogen to crops. *Agric. Gaz. N.S.W.* 53, 1942 (357-361).
- 631.461.1 3 : 631.417.4**—West, E. S. The efficiency of organic materials in supplying nitrogen to crops. *J. Aust. Inst. Agric. Sci.* 9, 1943 (45).
- IV, 4    **631.461.1 3 : 631.433.1**—Pontovich, V. E. Significance of changes in aeration conditions in humification processes of plant residues. *Mikrobiologiya* 8, 1939 (965-974). *Pedology* No. 11, 1940 (86).
- IV, 4    **631.461.1 3 : 631.445.5**—Dukhanin, K. S. Decomposition of root and stubble residues of grasses and grass mixtures on soils of the arid south-east. *Pedology* No. 11, 1940 (49-54). [R.]
- VI, 3    **631.461.1 3 : 631.51**—McCalla, T. M.; Duley, F. L. Disintegration of crop residues as influenced by sub tillage and plowing. *J. Amer. Soc. Agron.* 35, 1943 (306-315).
- IV, 6    **631.461.1 3 : 631.811.9**—Leroux, D. Influence of some trace elements on the combustion of organic matter and on nitrification in the soil. *C.R.* 210, 1940 (770-772). C.A. 35 (4535).
- VI, 1    **631.461.1 3 : 631.875**—Ashworth, M. R. F. Changes occurring in the organic matter during the decomposition of compost heaps. *J. Agric. Sci.* 32, 1942 (360-372).
- IV, 4    **631.461.1 3 : 664.15**—Narasimhamurthy, G. Carbon transformations during the decomposition of cane molasses under swamp soil conditions. *Indian J. Agric. Sci.* 10, 1940 (768-772). C.A. 35 (192b).
- 631.461.1**—Bogopol'sky, M. D.; Zinov'eva, Kh. G. Ammonifying bacteria and increase of soil fertility. *Mikrobiol. Zh.* 6, 1939 (111-139). *Pedology* No. 2, 1941 (116).
- V, 3    **631.461.1 : 576.809.6**—Bershova, O. I. Effect of external factors on bacteriophage of ammonifying bacteria. *Mikrobiol. Zh.* 6, No. 4, 1939. *Pedology* No. 2, 1941 (110).
- IV, 2    **631.461.1 : 576.809.6**—Bogopol'sky, M. D.; Bershova, O. I. Bacteriophage of ammonifying bacteria in various soil types. *Mikrobiol. Zh.* 6, No. 3, 1939 (61-80). *Pedology* No. 6, 1940 (123).
- 631.461.1 : 576.809.6**—Bershova, O. I. Dependence of the development of ammonifying bacteria on the bacteriophage in the soil. *Mikrobiol. Zh.* 7, No. 4, 1940 (97-117). *Biol. Abs.* 16 (182).
- VII, 4    **631.461.2 : 631.461.4**—Wilson, J. K. Nitrous acid and the loss of nitrogen. *Cornell Agric. Expt. Sta. Mem.* 253, 1943, pp. 36.
- IV, 4    **631.461.3**—Gopala Rao, G.; Sundara Rao, W. V. Mechanism of the microbiological oxidation of ammonia. III. *J. Indian Chem. Soc.* 17, 1940 (340-346). C.A. 35 (1562).
- 631.461.3**—Pikov'skaia, R. The activity of nitrifying bacteria of various soils. *Mikrobiol. Zh.* 7, Nos. 1-2, 1940 (189-207). C.A. 35 (2282).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.461.3—Stapp, C. Organisms associated with nitrifying bacteria. *Zbl. Bakt.* 11, 102, 1940 (193-214). *ForschDienst.* 11 (92). [G.] V, 1
- 631.461.3—Molotkovsky, G. Kh. Celluloid chambers for determination of nitrification *in situ* and for azotobacter culture. *Mikrobiologia* 10, 1941 (250-251). C.A. 36 (4951). VI, 2
- 631.461.3—Soriano, S.; Garassini, L. A. Isolation of nitrifying bacteria. *Rev. Argent. Agron.* 8, 1941 (177-191). *Biol. Abs.* 16 (954).
- 631.461.3 : 525.5—Nikolitch, S. Nitrates and conditions for their formation in podzolic soils. *Glas. Srpske Kral. Akad. Ser.* 1, 180, No. 89, 1939 (3-52). C.A. 35 (7091). VI, 3
- 631.461.3 : 525.5—Nikolitch, S. Nitrates and conditions of their formation in "smonitza" soils. *Glas. Srpske Kral. Akad. Ser.* 1, 180, No. 89, 1939 (55-111). C.A. 35 (7091). VI, 3
- 631.461.3 : 525.5—Bruce, A. Periodicity of nitrification. Part III. The coconut area. *Trop. Agricut.* 96, 1941 (76-81).
- 631.461.3 : 631.415.1—Martin, W. P.; Buehrer, T. F.; Caster, A. B. Threshold pH value for the nitrification of ammonia in desert soils. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (223-228). *Ariz. Agric. Expt. Sta. Tech. Bull.* 96, 1942 (473-510). *Biol. Abs.* 17 (2150).
- 631.461.3 : 631.432.2—Smaly, V. Effect of soil moisture on the nitrifying capacity of the soil. *Mikrobiol. Zh.* 5, 1938 (101-114). *Pedology* No. 2, 1941 (116). V, 3
- 631.461.3 : 631.436—McCool, M. M. Effect of temperature on availability of insoluble nitrogen. *Boyer Thompson Inst. Contr.* 12, 1941 (213-216). B.C.A.B. III, 1942 (66).
- 631.461.3 : 631.436.6—Torstensson, G. Nitrification in Swedish arable soils. *Bodenk. PflErnahr.* 29, 1943 (162-168). [G.] VI, 4
- 631.461.3 : 631.83 : 631.85—Hahn, B. E.; Olson, F. R.; Roberts, J. L. The influence of phosphatic and potassic fertilizers on nitrification. *J. Bact.* 40, 1940 (331). *Biol. Abs.* 14 (1597).
- 631.461.3 : 631.832—Hahn, B. E.; Olson, F. R.; Roberts, J. L. Influence of potassium chloride on nitrification in Bedford silt loam. *Soil Sci.* 54, 1942 (113-121). VI, 1
- 631.461.4—Meiklejohn, J. Aerobic denitrification. *Ann. Appl. Biol.* 27, 1940 (558-573). C.A. 35 (1826). IV, 4
- 631.461.4 : 535.21—Dhar, N. R.; Pant, N. N. Nitrogen loss from soils and oxide surfaces. *Nature* 153, 1944 (115-116). VII, 2
- 631.461.4 : 576.809.6—Bogopol'sky, M. D.; Korneeva, N. P. An investigation of the effect of bacteriophage on *Bacillus denitrificans*. II. *Mikrobiol. Zh.* 7, No. 3, 1940 (75-84). C.A. 35 (3379). IV, 5
- 631.461.5—Hüttel, R. The assimilation of atmospheric nitrogen by soil bacteria. *Angew. Chem.* 53, 1940 (141-144). C.A. 34 (6747).
- 631.461.5—Burk, D.; Burris, R. H. Biochemical nitrogen fixation. *Ann. Rev. Biochem.* 10, 1941 (586-618).
- 631.461.5—Peterson, H. B.; Goodding, T. H. The geographic distribution of azotobacter and *Rhizobium meliloti* in Nebraska soils in relation to certain environmental factors. *Neb. Agric. Expt. Sta. Res. Bull.* 121, 1941, pp. 24. E.S.R. 85 (734). V, 2
- 631.461.5—Bhaskaran, T. R.; Pillai, S. C. Fixation of atmospheric nitrogen in living forms. *Indian J. Agric. Sci.* 12, 1942 (178-239).

# BIBLIOGRAPHY OF SOIL SCIENCE

- 631.461.5—Burris, R. H.; Phelps, A. S.; Willson, J. B. Adaptations of rhizobium and azotobacter. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (272-275).
- IV, 5 631.461.5 : 535.21—Dhar, N. R.; Seshacharyulu, E. V.; Biswas, N. N. New aspects of nitrogen fixation and loss in soils. *Proc. Natl. Inst. Sci. India* 7, 1941 (115-131).
- V, 3 631.461.5 : 535.21—Dhar, N. R.; Sheshacharyulu, E. V. Nitrogen fixation under sterile conditions. *Proc. Natl. Acad. Sci. India* 11, Pt. 4, 1941 (97-105).
- V, 1 631.461.5 : 535.21—Sulaiman, M. Influence of light on nitrogen fixation in Dacca soil. *J. Indian Chem. Soc.* 18, 1941 (40-42). B.C.A.B. III, 1941 (249).
- IV, 6 631.461.5 : 535.21—Volz, E. An examination of the possibility of non-bacterial fixation of atmospheric nitrogen through the coupling of energy-yielding reactions. *Bodenk. PflErnähr.* 23, 1941 (260-264). [G.]
- VI, 4 631.461.5 : 535.21—Dhar, N. R. Mechanism of exothermal and endothermal induced reactions and a new method of fixation of atmospheric nitrogen. *J. Indian Chem. Soc. Indust. Ed.* 5, 1942 (210-220). B.C.A.B. III, 1943 (166).
- VI, 4 631.461.5 : 535.21—Dhar, N. R. Improvement of the nitrogen status of soils and the origin of soil-nitrogen. *Nature* 151, 1943 (590-592). B.C.A.B. III, 1943 (166).
- 631.461.5 : 633.61-1.876.9—Sundara Rao, A. L. Fixation of nitrogen in soil by the application of press-mud from sugar factories. *Proc. Soc. Biol. Chem. India* 4, Pt. I, 1939 (39-40).
- 631.461.5 : 664.15—Bhaskharan, T. R.; Pillai, S. G. Nitrogen fixation in the soil by the solid-lime compound prepared from cane molasses and its bearing on crop production. *Proc. Soc. Biol. Chem. India* 4, Pt. I, 1939 (36-38).
- IV, 1 631.461.51—Gaw, H. Z. The occurrence and isolation of azotobacter in Chinese soils. *Science* 92, 1940 (453-454).
- IV, 4 631.461.51—Jensen, H. L.; Swaby, R. J. Further investigations on nitrogen-fixing bacteria in soil. *Proc. Linn. Soc. N.S.W.* 65, 1940 (557-564).
- 631.461.51—Stapp, C. *Azotomonas insolita*, a new aerobic nitrogen-fixing bacterium. *Zbl. Bakt.* 11, 102, 1940 (1-19). *Forsch. Dienst.* 12 (37). [G.]
- IV, 4 631.461.51—Suomalainen, H. The chemical mechanism of biological nitrogen fixation. *Acta Chem. Fenn.* 13B, 1940 (17). C.A. 35 (2657). [E.]
- VII, 2 631.461.51—Butkevich, V. S.; Koleshnikova, N. A. Ammonia in the process of fixation of molecular nitrogen by azotobacter. *C.R. Acad. Sci. (U.S.S.R.)* 33, 1941 (66-69). C.A. 37 (3471).
- V, 6 631.461.51—Lind, C. J.; Willson, P. W. Nitrogen fixation by azotobacter in association with other bacteria. *Soil Sci.* 54, 1942 (105-111).
- VII, 4 631.461.51—Loureiro, S. M. de. Azotobacter in the barren soils at Quinta da Aldeia, Sacavém. *Agron. Lusit.* 4, 1942 (191-197). [Pt.e.]
- VI, 4 631.461.51—Soriano, S. The presence of *Azotobacter agilis* in North and South America. *Proc. Eighth Amer. Sci. Cong.* 3, 1942 (279-283). *Biol. Abs.* 17 (1513).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.461.51—Burris, R. H.; Eppling, F. J.; Wahlin, H. B., et al.** Detection of nitrogen fixation with isotopic nitrogen. *J. Biol. Chem.* 148, 1943 (349-357). C.A. 37 (4422). VII, 2
- 631.461.51—Fife, J. M.** An apparatus for studying respiration of azotobacter in relation to the energy involved in nitrogen fixation and assimilation. *J. Agric. Res.* 66, 1943 (229-248). C.A. 37 (4188).
- 631.461.51—Wilson, P. W.; Hull, J. F.; Burris, R. H.** Competition between free and combined nitrogen in nutrition of *Azotobacter*. *Proc. Natl. Acad. Sci. Wash.* 29, 1943 (289-294). B.C.A.A. III, 1944 (72). VII, 2
- 631.461.51 : 546.77 : 546.881—Horner, C. K.; Burk, D.; Allison, F. E., et al.** Nitrogen fixation by azotobacter as influenced by molybdenum and vanadium. *J. Agric. Res.* 65, 1943 (173-193).
- 631.461.51 : 577.15.04—Jones, L. W.; Greaves, J. E.** *Azotobacter chroococcum* and its relationship to accessory growth factors. *Soil Sci.* 55, 1943 (393-404).
- 631.461.51 : 631.415.1—Mishustin, E. N.; Bakhareva, Z. I.** Soil acidity as a factor determining the appearance of inactive azotobacter in soils. II. Inactive forms of azotobacter obtained experimentally. *Mikrobiologiya* 8, 1939 (1063-1072). *Pedology* No. 11, 1940 (89). IV, 4
- 631.461.51 : 631.415.1—Mishustin, E. N.; Semenov, M. I.** Soil acidity as a factor determining the appearance of inactive azotobacter in soil. *Mikrobiologiya* 8, 1939 (19-30). C.A. 34 (7053).
- 631.461.51 : 631.415.1—Smaly, V.** Development of azotobacter in relation to pH of the soil. *Mikrobiol. Zh.* 6, No. 3, 1939 (127-143). C.A. 35 (2262). IV, 5
- 631.461.51 : 631.415.1—Starkey, R. L.** The influence of reaction upon the development of an acid-tolerant azotobacter. *Trans. Int. Soc. Soil Sci. Third Comm.* A, 1939 (142-150). IV, 1
- 631.461.51 : 631.415.1—Berge, T. O.** Relation of surface soil acidity to activity of *Azotobacter* in Fargo clay soils. *N. Dak. Agric. Expt. Sta. Bimo. Bull.* 2, No. 6, 1940 (16-18). E.S.R. 83 (742).
- 631.461.51 : 631.445.5—Jensen, H. L.** Contribution to the nitrogen economy of Australian wheat soils, with particular reference to New South Wales. *Proc. Linn. Soc. N.S.W.* 65, 1940 (1-221). C.A. 34 (6398). IV, 1
- 631.461.51 : 631.445.5—Moyer, R. T.** Nonsymbiotic nitrogen fixation in soils of a semi-arid region of North China. *J. Amer. Soc. Agron.* 33, 1941 (980-992). V, 2
- 631.461.51 : 631.445.5—Sushkina, N. N.** Development of azotobacter in the soils of arid steppes and deserts. *C.R. Acad. Sci. (U.S.S.R.)* 31, 1941 (290-292). [E.] V, 2
- 631.461.51 : 631.445.5—Vandecaveye, S. C.; Moodie, C. D.** Occurrence and activity of azotobacter in semiarid soils in Washington. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (229-236). *Biol. Abs.* 17 (1939). VII, 1
- 631.461.51 : 631.461.1—Winogradsky, S.** Studies on soil microbiology. X. The enzymatic synthesis of ammonia in soil and water. *Ann. Inst. Pasteur* 66, 1941 (97-128). *Biol. Abs.* 16 (1610). C.A. 36 (6287).

# BIBLIOGRAPHY OF SOIL SCIENCE

- IV, 4     **631.461.51 : 631.461.61-** Jensen, H. L. Nitrogen fixation and cellulose decomposition by soil microorganisms. I. Aerobic cellulose-decomposers in association with azotobacter. *Proc. Linn. Soc. N.S.W.* 65, 1940 (543-556).
- 631.461.51 : 631.461.61** Jensen, H. L.; Swaby, R. J. Nitrogen fixation and cellulose decomposition by soil micro-organisms. II. The association between azotobacter and facultative-aerobic cellulose-decomposers. III. *Clostridium butyricum* in association with aerobic cellulose-decomposers. *Proc. Linn. Soc. N.S.W.* 66, 1941 (89-106, 239-249). *Biol. Abs.* 16 (182).
- 631.461.51 : 631.461.61** Jensen, H. L.; Swaby, R. J. Association between nitrogen-fixing and cellulose-decomposing micro-organisms. *Nature* 147, 1941 (147-148).
- IV, 3     **631.461.51 : 631.467.1** Hervey, R. J.; Greaves, J. E. Nitrogen fixation by *Azobacter chroococcum* in the presence of soil protozoa. *Soil Sci.* 51, 1941 (85-100).
- V, 6     **631.461.51 : 631.81** Roberts, J. L.; Olson, F. R. The influence of fertilizers and season on non-symbiotic nitrogen fixation in Brookston and Belford silt loams. *J. Amer. Soc. Agron.* 34, 1942 (624-627).
- 631.461.51 : 631.84** Sheloumova, A. M.; Vukhrer, E. G. Effect of bound nitrogen on the efficiency of azotobacter. *Mikrobiologia* 9, 1940 (804-812). *C.A.* 35 (7089). [Rc.]
- 631.461.51 : 631.847.2** Isakova, A. A. The effect of rhizosphere bacteria on plant development. *Bull. Acad. Sci. (U.S.S.R.) (Cl. Sci. Math. Sci. Biol. No. 5, 1939 (838-855). Herb. Abs.* 11 (193). [Rc.]
- IV, 5     **631.461.51 : 631.847.2** Fedorov, M. V. Effect of azotobacter on the nitrogen balance of soil and the yield of agricultural plants, with straw as fertilizer. *Mikrobiologia* 9, 1940 (341-356, 556-557). *C.A.* 35 (414).
- V, 5     **631.461.51 : 631.847.2** Zinov'eva, Kh. G. The method of azotobacterium preparation. *Mikrobiol. Zh.* 7, No. 3, 1940 (85-96). *Biol. Abs.* 16 (1210).
- V, 1     **631.461.51 : 631.847.2** Aivarzhi, F. Effectiveness of azotobacter. *Sotsial. Zern. Khoz.* No. 1, 1941 (126-132). [Rc.]
- 631.461.51 : 631.847.2** Sheloumova, A. M. The nature of azotogen action. *Mikrobiologia* 10, 1941 (33-41). *C.A.* 36 (4957).
- V, 4     **631.461.51 : 631.847.2** Greaves, J. E.; Jones, L. W. Inoculation of soil with *Azobacter chroococcum*. *Soil Sci.* 53, 1942 (229-232).
- V, 3     **631.461.51 : 631.86 7** Zinov'eva, Kh. G. Effect of lupins and manure on the vital activity of azotobacter. *Mikrobiol. Zh.* 5, 1938 (153-165). *Pedology* No. 2, 1941 (113).
- V, 1     **631.461.51 : 631.879.2** Allen, L. A. Protein production by nitrogen-fixing bacteria under conditions of continuous aeration. *Biochem. J.* 35, 1941 (801-805).
- V, 4     **631.461.51 : 663.12** -Frei, H. Quantitative researches on the assimilation of elementary atmospheric nitrogen by film-forming yeasts. *Zbl. Bakt.* 11, 104, 1942 (326-365). [G.]
- 631.461.52** -Rabotnova, I. L. Nitrogen fixation by nodule bacteria. *Mikrobiologia* 8, 1939 (1151-1160). *Pedology* No. 11, 1940 (91).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.461.52 -Allison, F. E.; Ludwig, C. A.; Hoover, S. R., et al. IV, 1  
Biochemical nitrogen-fixation studies. I. Evidence for limited  
oxygen supply within the nodule. *Bot. Gaz.* 101, 1940 (513-533).  
Hort. Abs. 10 (200).
- 631.461.52 -Allison, F. E.; Ludwig, C. A.; Hoover, S. R., et al. IV, 1  
Biochemical nitrogen fixation studies. II. Comparative respiration  
of nodules and roots including non-legume roots. *Bot. Gaz.* 101, 1940  
(534-549). Hort. Abs. 10 (200).
- 631.461.52 -Bursik, E. Experiments and considerations on the IV, 1  
work by H. Schanderl on symbiosis by bacteria in leguminous and  
non-leguminous plants. *Planta* 30, 1940 (683-688). Biol. Abs. 14  
(1184). [G.]
- 631.461.52 -Chen, H. K.; Nicol, H.; Thornton, H. G. The  
growth of nodule bacteria in the expressed juices from legume roots  
bearing effective and ineffective nodules. *Proc. Roy. Soc. B*, 129,  
1940 (475-491). Biol. Abs. 16 (442).
- 631.461.52 -Ali-Zade, M. Assimilation by legumes of nodule V, 4  
nitrogen. *C.R. Acad. Sci. (U.S.S.R.)* 30, 1941 (256-259). Herb. Abs. 12  
(42).
- 631.461.52 -Chen, H. K. The limited numbers of nodules produced V, 1  
on legumes by different strains of *Rhizobium*. *J. Agric. Sci.* 31,  
1941 (479-487).
- 631.461.52 -Golik, M. G. The influence of soils on the activity VII, 3  
of legume bacteria. *Khim. Sel'sk. Zemled.* No. 6, 1941 (12-14).  
C.A. 37 (711).
- 631.461.52 -Jensen, H. L. Root nodule formation and nitrogen IV, 5  
fixation in leguminous plants. *Aust. J. Sci.* 3, 1941 (98-99). C.A. 35  
(3378).
- 631.461.52 -Krasilnikov, N. A. Mutability of nodule bacteria. V, 6  
*C.R. Acad. Sci. (U.S.S.R.)* 31, 1941 (75-76). E.S.R. 86 (752).
- 631.461.52 -Kroulik, J. T.; Gainey, P. L. Physiologic studies V, 2  
of *Rhizobium meliloti*, with special reference to the effectiveness of  
strains isolated in Kansas. *J. Agric. Res.* 62, 1941 (359-369). E.S.R.  
85 (592).
- 631.461.52 -Nicol, H.; Thornton, H. G. Competition between  
related strains of nodule bacteria and its influence on infection of  
the legume host. *Proc. Roy. Soc. B*, 130, 1941 (32-59).
- 631.461.52 -Nielsen, N.; Johansen, G. Investigation of bio-  
logical nitrogen fixation. IV. Comparative studies of the growth  
of different strains of *Rhizobium leguminosarum* with different sources  
of nitrogen. *C.R. Lab. Carlsberg Sci. Physiol.* 23, 1941 (163-172).  
C.A. 36 (509).
- 631.461.52 -Posadas, S. S. A study of root-nodule bacteria of V, 3  
certain leguminous plants. *Philipp. Agricult.* 30, 1941 (215-226).
- 631.461.52 -Vincent, J. M. Effective and ineffective association  
between root-nodule bacteria and the host plant. With reply by  
H. G. Thornton. *Nature* 148, 1941 (315-316). Biol. Abs. 16 (955).
- 631.461.52 -Allison, F. E.; Hoover, S. R.; Minor, F. W. VI, 2  
Biochemical nitrogen-fixation studies. IV. Experiments with  
excised legume nodules. *Bot. Gaz.* 104, 1942 (63-71). C.A. 36 (7070).
- 631.461.52 -Hughes, D. Q.; Vincent, J. M. Serological studies VI, 3  
of the root-nodule bacteria. III. Tests for neighbouring strains of  
the same species. *Proc. Linn. Soc. N.S.W.* 67, 1942 (142-152).  
Biol. Abs. 17 (1046).



# BIBLIOGRAPHY OF SOIL SCIENCE

- 631.461.52**—Jensen, H. L. Nitrogen fixation in leguminous plants. I. General characters of root-nodule bacteria isolated from species of *Medicago* and *Trifolium* in Australia. *Proc. Linn. Soc. N.S.W.* 67, 1942 (98-108). *Biol. Abs.* 16 (2296).
- VI, 4 **631.461.52** Vincent, J. M. Serological studies of the root-nodule bacteria. Strains of *Rhizobium trifolii*. *Proc. Linn. Soc. N.S.W.* 67, 1942 (82-86). *E.S.R.* 88 (741).
- 631.461.52** Andrews, W. B.; Briscoe, C. F. The response of vetch and soybeans to strains of nodule bacteria. *J. Amer. Soc. Agron.* 35, 1943 (271-278).
- VII, 1 **631.461.52** Appleman, M. D.; Sears, O. H. Further evidence of interchangeability among groups of *Rhizobium leguminosarum*. *Proc. Soil Sci. Soc. Amer.* 1942 7, 1943 (263-264). *Biol. Abs.* 17 (1936).
- VII, 1 **631.461.52** Burris, R. H.; Eppling, F. J.; Wahlin, H. B., et al. Studies of biological nitrogen fixation with isotopic nitrogen. *Proc. S. I. S. Soc. Amer.* 1942 7, 1943 (258-262).
- 631.461.52** Demolon, A.; Dunez, A. The mechanism of bacterial symbiosis in leguminous plants. *C.R.* 216, 1943 (312-313). *C.A.* 38 (2696).
- 631.461.52** Wilson, J. K.; Westgate, P. J. Variations in the percentage of nitrogen in the nodules of leguminous plants. *Proc. Soil Sci. Soc. Amer.* 1942 7, 1943 (265-268). *Biol. Abs.* 17 (1939).
- VII, 4 **631.461.52** Wilson, J. K. Over five hundred reasons for abandoning the cross inoculation groups of the legumes. *Soil Sci.* 58, 1944 (61-69).
- 631.461.52**; 537.533 Appleman, M. D.; Barnes, M. R.; Sears, O. H. Some morphological characteristics of nodule bacteria as shown by the electron microscope. *Proc. Soil Sci. Soc. Amer.* 1942 7, 1943 (269-271).
- VI, 4 **631.461.52**; 541.144.7 Gukova, M. M.; Butkevich, V. S. Rate of photosynthesis in leguminous plants supplied with free or combined nitrogen. *C.R. Acad. Sci. U.S.S.R.* 31, 1941 (933-936). *B.C.A.A.* III, 1943 (293).
- V, 1 **631.461.52**; 546.27 Dufrénoy, J. The relation of boron to the root-nodules of *Urtica dioica*. *Growth* 4, 1940 (323-326). *Biol. Abs.* 15 (1750).
- 631.461.52**; 546.77 Bertrand, D. Molybdenum in legume nodules. *C.R.* 211, 1940 (670-672). *E.S.R.* 87 (350).
- VII, 1 **631.461.52**; 546.77 Jensen, H. L.; Betty, R. C. N fixation in leguminous plants. III. Importance of Mo in symbiotic N fixation. *Proc. Linn. Soc. N.S.W.* 68, 1943 (1-8). *C.A.* 37 (5761).
- V, 1 **631.461.52**; 546.881 Gericke, S. Further experiments on the effect of vanadium on plant growth. *Bodenk. Pfl. Ernähr.* 23, 1941 (342-350). [G.]
- 631.461.52**; 576.809.6 Katznelson, H. Studies with the bacteriophage of rhizobia. *Sci. Agric.* 22, 1941 (209-215).
- 631.461.52**; 576.809.6 Fuller, W. H.; Vandecaveye, S. G. Isolation and identification of rhizobia bacteriophage. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (197-199).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.461.52:581.192 Loyzianskaia, M. S. The development of nodule bacteria in the roots of alkaloid-containing and alkaloid-free lupins; and nitrogen fixation by nodule bacteria in such plants. *Mikrobiologia* 10, 1941 (15-32). Zbl. Bakt. II, 194 (285). V, 3
- 631.461.52:631.415.1 Harston, C. B.; Albrecht, W. A. Plant nutrition and hydrogen ion. IV. Soil acidity for improved nutrient delivery and nitrogen fixation. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (247-257). Biol. Abs. 17 (1937). VII, 1
- 631.461.52:631.415.1 Jensen, H. L. Nitrogen fixation in leguminous plants. IV. The influence of reaction on the formation of root nodules in *Medicago* and *Trifolium*. *Proc. Linn. Soc. N.S.W.* 68, 1943 (207-220). VII, 3
- 631.461.52:631.416.1 Bond, G. Symbiosis of leguminous plants and nodule bacteria. II. Further observations on the excretion of nitrogenous substances from nodules. *Aust. Bot.* 5, 1941 (647-660). E.S.R. 87 (37).
- 631.461.52:631.416.1 Chapman, H. D. Failure of vetch to excrete nitrogen from the nodules when grown in association with nitrogen-deficient citrus seedlings. *J. Amer. Soc. Agron.* 35, 1943 (635-637). C.A. 37 (6077). VII, 2
- 631.461.52:631.436 Butkevich, V. S.; Gukova, M. M. Influence of soil temperature on fixation of molecular nitrogen by leguminosae. *C.R. Acad. Sci. U.S.S.R.* 35, 1942 (118-121). [E.] VI, 2
- 631.461.52:631.445.11 Kriss, A. Y.; Korenjako, A. I.; Migulina, V. M. Nodule bacteria in the arctic regions. *Mikrobiologia* 10, 1941 (61-73). Zbl. Bakt. II, 194 (286). V, 3
- 631.461.52:631.452 Roberts, J. L.; Olson, F. R. The relative efficiency of strains of *Rhizobium loti* as influenced by soil fertility. *Science* 95, 1942 (413-414). V, 4
- 631.461.52:631.461.51 Jensen, H. L. Nitrogen fixation in leguminous plants. II. Is symbiotic nitrogen fixation influenced by azotobacter? *Proc. Linn. Soc. N.S.W.* 67, 1942 (205-212). Biol. Abs. 17 (1046). VI, 3
- 631.461.52:631.811.3 Ferguson, C. E.; Albrecht, W. A. Nitrogen fixation and soil fertility exhaustion by soybeans under different levels of potassium. *Missouri Agric. Expt. Sta. Res. Bull.* 330, 1941, pp. 52. V, 1
- 631.461.52:631.811.9 Javillier, MS. The influence of some trace elements on agriculturally important microbes; decomposition of organic material, nitrification, fixation of atmospheric nitrogen. *C.R. Acad. Agric.* 27, 1941 (486-489). C.A. 38 (3406).
- 631.461.52:631.811.9 Leroux, D. The influence of various trace elements on the fixation of atmospheric nitrogen in the course of the growth of a legume. *C.R.* 212, 1941 (504-507). C.A. 38 (3405). VII, 4
- 631.461.52:631.821.2 Vandecaveye, S. C.; Fuller, W. H. Studies of different cultures of *Rhizobium leguminosarum* and of gypsum and straw for seed pea production. *Iowa St. Coll. J. Sci.* 15, 1941 (415-423). E.S.R. 86 (159). V, 3
- 631.461.61 Franco, M. Microbial degradation of cellulose and reclamation of the soil. *Rev. Biol.* 29, 1940 (11-34). C.A. 37 (5815). VII, 1
- 631.461.61 Stanier, R. Y. The Cytophaga group: a contribution to the biology of myxobacteria. *Bact. Rev.* 6, 1942 (143-196).

# BIBLIOGRAPHY OF SOIL SCIENCE

- VII, 1 631.461.61—Fuller, W. H.; Norman, A. G. A cellulose-dextrin medium for identifying cellulose organisms in soil. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (243-246).
- 631.461.61 Fuller, W. H.; Norman, A. G. Cellulose decomposition by aerobic mesophilic bacteria from soil. I. Isolation and description of organisms. II. Biochemical studies on filter-paper and cellulose preparations. III. Effect of lignin. *J. Bact.* 46, 1943 (273-280, 281-289, 291-297). B.C.A.A. III, 1944 (72).
- 631.461.61 Fuller, W. H.; Norman, A. G. Characteristics of some soil *Cytophaga*. *J. Bact.* 45, 1943 (565-572). Biol. Abs. 17 (2150).
- 631.461.71 Lipman, C. B.; McLees, E. A new species of sulfur-oxidizing bacteria from a coprolite. *Soil Sci.* 50, 1940 (429-433).
- IV, 5 631.461.71 Vogler, K. G.; Umbreit, W. W. The necessity for direct contact in sulfur oxidation by *Thiobacillus thiooxidans*. *Soil Sci.* 51, 1941 (331-337).
- VII, 2 631.461.71 : 620.19 Starkey, R. L.; Wight, K. M. Soil areas corrosive to metallic iron through activity of anaerobic sulfate-reducing bacteria. *Amer. Gas. Assoc. Mo.* 25, 1943 (223-228). C.A. 37 (8075).
- 631.461.74 Taylor, A. W.; Gordon, W. S. A survey of the types of *Cl. welchii* present in soil and in the intestinal contents of animals and man. *J. Path. Bact.* 50, 1940 (271-277). F.S.R. 83 (823).
- 631.461.74 Bartels, R. Phenol-decomposing soil bacteria. *Zbl. Bakt.* 11, 103, 1941 (1-39). [G.]
- VI, 2 631.461.74 Mishustin, E. N.; Pushkinskaia, O. I. Distribution of *Bacterium mycoides* Flugge in soils of various types. *Mikrobiologia* 10, 1941 (439-455). C.Y. 36 (7207). [R.]
- 631.461.74 Haines, R. B. Occurrence of toxigenic anaerobes, especially *Clostridium botulinum*, in some English soils. *J. Hyg.* 42, 1942 (323-327). B.C.A.B. III, 1943 (69).
- 631.461.74 Stokes, J. L.; Woodward, C. R. The isolation from soil of spore-forming bacteria which produce bacterial substances. *J. Bact.* 43, 1942 (253-263). C.A. 36 (2364).
- 631.461.74 Van Niel, C. B. The culture, general physiology, morphology, and classification of the non-sulfur purple and brown bacteria. *Bact. Rev.* 8, 1944 (1-118).
- VII, 4 631.461.74 : 547.92 Turfitt, G. E. Microbiological agencies in the degradation of steroids. I. The cholesterol-decomposing organisms of soils. *J. Bact.* 47, 1944 (487-493).
- 631.462—Bewley, W. F. Glasshouse soil sterilisation. *Fruit-Grower* 92, 1941 (180, 190).
- V, 2 631.462—Reinhold, J.; Noll, J.; Hausrath, E. The causes of failure of growth on steamed heavy soil. *Gartenbauwiss.* 15, 1941 (471-486). *ForschDienst.* 12 (10). [G.]
- 631.462—Agricultural Gazette of New South Wales. Steam sterilisation of soils. *Agric. Gaz. N.S.W.* 53, 1942 (91-93).
- 631.462—Cruz, S. R. Constant-current resistance soil pasteurizer. *Agric. Engng.* 23, 1942 (129-130, 133).
- 631.462—Hustrulid, A. An insulated electric soil pasteurizer. *Agric. Engng.* 23, 1942 (127-128).
- V, 6 631.462—Peterson, M. L. An inexpensive soil sterilizer. *J. Amer. Soc. Agron.* 34, 1942 (674-676).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.462** **Tavernetti, J. R.** A continuous soil pasteurizer. *Agric. Engng.* 23, 1942 (255-256, 261). V, 6
- 631.462** **Dimock, A. W. ; Post, K.** An efficient, labor-saving method of steaming soil. *Cornell Ext. Bull.* 635, 1944, pp. 7. VII, 4
- 631.462 : 547.414.8** **Grushevoi, S. E. ; Levykh, P. M. ; Rozinov, P. G., et al.** Chemical method of disinfecting seed-bed soil. *VTTM* No. 141, 1940 (30-41). R.A.M. 20 (86). [R.e.] IV, 3
- 631.462 : 631.415.1** **Bogopolsky, M. D. ; Bershova, O. I.** Partial sterilization of soils according to the data of microbiological and chemical experimental investigations. II. *Mikrobiol. Zh.* 6, No. 1-2, 1939 (69-113). C.A. 35 (2261). Zbl. Bakt. II, 103 (115). [U.e.] IV, 5
- 631.462 : 631.416** **Afanas'eva, A. L.** Mobilization of soil nutrients by partial sterilization. *Trudy Omsk. S.-Kh. Inst.* 4, 1939 (23-34). *Pedology* No. 2, 1941 (122). V, 3
- 631.462 : 631.416** **Laurie, A.** Effect of steam sterilization on the soluble salts of soils. *Ohio Veg. Potato Grow. Assoc. Proc.* 25, 1940 (111-123). C.A. 34 (7051). IV, 2
- 631.466.1** **Rippel, A.** Distribution of *Aspergillus niger*, especially in Germany. *Arch. Mikrobiol.* 11, 1940 (1-32). Biol. Abs. 15 (1386). IV, 6
- 631.466.1** **Kelley, A. P.** The variations in form of mycorrhizal short-roots of *Pinus virginiana* Mill. associated with certain soil series. *Landenberg Lab. Pub.* Feb. 10, 1941, pp. 10. (Mimeo.) Hort. Abs. 11 (100). IV, 6
- 631.466.1** **Szilvinyi, A. V.** Microbiological soil analyses in the Lutz region. Part III. *Zbl. Bakt.* 11, 103, 1941 (133-189). R.A.M. 20 (492). V, 1
- 631.466.1** **Niethammer, A.** Microscopic fungi of the soil. *Arch. Mikrobiol.* 13, 1942 (2705-2706). C.A. 38 (3064). VII, 4
- 631.466.1** **Bisby, G. R.** Geographical distribution of fungi. *Bot. Rev.* 9, 1943 (466-482). VII, 4
- 631.466.1** **Thomas, W. D., Jr.** Mycorrhizae associated with some Colorado flora. *Phytopath.* 33, 1943 (144-149). E.S.R. 88 (741). VI, 4
- 631.466.1** **Waksman, S. A. ; Horning, E. S.** Distribution of antagonistic fungi in nature and their antibiotic action. *Mycologia* 35, 1943 (47-65). R.A.M. 22 (266). V, 3
- 631.466.1** **Björkman, E.** The effect of strangulation on the formation of mycorrhiza in pine. *Scensk Bot. Tidskr.* 38, 1944 (1-14). R.A.M. 23 (270). VII, 4
- 631.466.1 : 016** **Kelley, A. P.** Additions to the literature of mycorrhizae. *Supplement* No. 5, to "The Literature of Mycorrhizae". *Landenberg Lab. Pub.* Jan. 1, 1942, pp. 7. For. Abs. 4 (14). VII, 3
- 631.466.1 : 547.458.84** **Pinck, L. A. ; Allison, F. E.** The synthesis of lignin-like complexes by fungi. *Soil Sci.* 57, 1944 (155-161). VII, 3
- 631.466.1 : 631.416** **Rosendahl, R. O.** The effect of mycorrhizal and nonmycorrhizal fungi on the availability of difficultly soluble potassium and phosphorus. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (477-479). Biol. Abs. 17 (2034). VII, 1

## BIBLIOGRAPHY OF SOIL SCIENCE

- VI. 2    **631.466.1 : 631.434** Kanivets, I. I. The role of *Trichoderma lignorum* in the root systems of sugar beets, winter wheat, oats, lupin and clover in the creation of soils with a stable structure. *Storn. Rab.* VNIIS 1939 (136-172). C.A. 36 (5305).
- IV. 2    **631.466.1 : 631.434** Koval, P. K. Role of the fungus *Trichoderma lignorum* in increasing soil fertility and the yield of agricultural plants. *Nauk. Zap. Sakh. Prom. Agron.* No. 1, 1939 (50-53). Pedology No. 6, 1940 (127).
- IV. 2    **631.466.1 : 631.434** Omel'chuk, A. V. Effect of soil inoculation with *Trichoderma lignorum* on the changes in soil processes and on sugar beet yields. *Sel'skok. Prirodskoe* No. 10-11, 1939 (66-70). *Sov. Strel. Sug. Res. Inst. Moscow* (1937) 1939 (211-213). Pedology No. 6, 1940 (127).
- 631.466.1 : 631.434** Mishustin, E. N. Soil-structure formation and the fungus *Trichoderma lignorum*. *Sov. Strel. Agron.* No. 11-12, 1940 (104-109). [R.]
- VII. 3    **631.466.1 : 631.434** Dorokhova, N. A. The influence of fungi of the rhizosphere on the formation of stable aggregates in soils. *Storn. Prom. B. R. Ussr.* 1942 (219-234). [R.]
- VII. 1    **631.466.1 : 631.434** Martin, T. L.; Anderson, D. A. Organic matter decomposition, mold flora, and soil aggregation relationships. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (215-217). Biol. Abs. 17 (1948).
- VI. 3    **631.466.1 : 631.461.1.3** Tatunko, V. D. The effect of inoculation of the soil with microorganisms on the transformation of organic matter. *Nauk. Zap. Sakh. Prom.* 17, 1940 (121-122). C.A. 36 (1719). R.A.M. 20 (491).
- VI. 3    **631.466.1 : 631.461.1.3** Martin, T. L.; Graham, R. C. Influence of organic matter decomposition on the fungus flora of the soil. Abs. in *Proc. Utah Biol. Soc.* 18, 1941 (11-12). R.A.M. 22 (110).
- VI. 1    **631.466.1 : 631.461.1.3** Martin, T. L.; Anderson, D. A.; Goates, R. Influence of the chemical composition of organic matter on the development of mold flora in soil. *Soil Sci.* 54, 1942 (297-302).
- VII. 2    **631.466.1 : 631.461.5** Bose, S. R. Fixation of atmospheric nitrogen by fungi. *Science and Culture* 8, 1943 (389). Biol. Abs. 18 (152).
- V. 5    **631.466.1 : 631.467.1** Drechsler, C. New species of *Acanthopaps* and *Trichonema* destructive to soil amoebae. *Mycologia* 34, 1942 (274-287).
- V. 4    **631.466.1 : 631.811.9** Steinberg, R. A. Sulfur and trace-element nutrition of *Aspergillus niger*. *J. Agric. Res.* 63, 1941 (109-127).
- VI. 3    **631.466.1 : 631.831** Björkman, E. Formation and frequency of mycorrhizae in forest trees in portions of a moor unmanured and treated with wood ashes. *Medd. Skogsborsokanst.* 32, 1940 (41 (255-296). [Sw., g.]
- IV. 1    **631.466.1 : 632.951.22** Niethammer, A. The influence of a carbon-disulphide preparation on typical microscopic soil fungi. *Zd. Bakt.* 11, 102, 1940 (20-24). R.A.M. 19 (675).
- 631.466.2** Waksman, S. A.; Woodruff, H. B. *Actinomyces antibioticus*, a new soil organism antagonistic to pathogenic and non-pathogenic bacteria. *J. Bact.* 42, 1941 (231-249).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.466.2 Waksman, S. A.; Horning, E. S.; Welsch, M., et al. Distribution of antagonistic actinomycetes in nature. *Soil Sci.* 54, 1942 (281-296). VI, 1
- 631.466.2 Jensen, H. L. Observations on the vegetative growth of actinomycetes in the soil. *Proc. Linn. Soc. N.S.W.* 68, 1943 (67-71). VII, 4
- 631.466.2 Jones, K. L. The influence of soil depth upon distribution of *Actinomycetes*. *Mich. Acad. Sci. Pap.* (1943) 29, 1944 (15-22). *Biol. Abs.* 18 (1251).
- 631.466.3 Fritsch, F. E.; John, R. P. An ecological and taxonomic study of the algae of British soils. II. Consideration of the species observed. *Ann. Bot.* 6, 1942 (371-385).
- 631.466.3 John, R. P. An ecological and taxonomic study of the algae of British soils. I. The distribution of the surface-growing algae. *Ann. Bot.* 6, 1942 (323-349). V, 6
- 631.466.3 Smith, F. B.; Ellis, H. R. Preliminary report on the algal flora of some Florida soils. *Proc. Fla. Acad. Sci.* 6, 1943 (59-65). *E.S.R.* 89 (290).
- 631.466.3 : 535.21 Fehér, D.; Frank, M. Further remarks about our work on the relations between soil algae and light. *Arch. Mikrobiol.* 11, 1940 (80-84). *Zbl. Bakt.* 11, 103 (56). [G.]
- 631.466.3 : 631.416.1 Stokes, J. L. The relation of algae to the nitrogen economy of the soil. *Chém. Bot.* 6, 1941 (202-203). *E.S.R.* 84 (739).
- 631.466.3 : 631.452 Fenton, E. W. The algal vegetation of certain Boghall Farm soils. *Trans. Bot. Soc. Edinburgh* 33, 1943 (407-415). VII, 3
- 631.466.3 : 631.461.5 Bogg, G. E. Studies on nitrogen fixation by blue-green algae. I. Nitrogen fixation by *Anabaena cylindrica* Lemm. *J. Expt. Biol.* 19, 1942 (78-87). V, 5
- 631.466.3 : 631.461.5 Singh, R. N. The fixation of elementary nitrogen by some of the commonest blue-green algae from the paddy field soils of the United Provinces and Bihar. *Indian J. Agric. Sci.* 12, 1942 (743-756). VI, 2
- 631.467.1 : 632.3 Singh, B. N. Selection of bacterial food by soil flagellates and amoebae. *Ann. Appl. Biol.* 29, 1942 (18-22). *R.A.M.* 21 (283). V, 5
- 631.467.1 : 632.4 Brodsky, A. L. Antagonism between soil infusoria and pathogenic fungi. *C.R. Acad. Sci. (U.S.S.R.)* 33, 1941 (81-83). *R.A.M.* 22 (267). VI, 4
- 631.468 King, K. M. Population studies of soil insects. *Ecol. Monog.* 9, 1939 (270-286). *R.A.E.* 29A (396).
- 631.468 Franz, H. Studies on the soil biology of alpine grass and cultivated land. *Forsch.Dienst.* 11, 1941 (355-368). [G.] IV, 6
- 631.468 Prints, Ya. I. The influence of soil factors on the development of insects. *Priroda* No. 1, 1941 (77). [R.] IV, 6
- 631.468 Strandine, E. J. Quantitative study of snail population. *Ecology* 22, 1941 (86-91). *B.C.A.B.* III, 1941 (146). IV, 6
- 631.468-Gilliarov, M. S. Comparative numbers of soil fauna in dark-coloured and podzolic soils. *Pedology* No. 9-10, 1942 (3-15). [R.e.] VII, 1

## BIBLIOGRAPHY OF SOIL SCIENCE

- V, 3    **631.468 : 631.416**—**Formozov, A. N.; Voronov, A. G.** Activity of rodents in the pastures and hay fields of Western Kazakhstan and its economic significance. *Uchen. Zap. Mosk. Gosud. Univ.* No. 20, 1939 (3-122). *Pedology* No. 2, 1941 (125).
- V, 3    **631.468 : 631.416**—**Dimo, N. A.** Activity of animals in the soils of the Alazan valley. *Pedology* No. 6, 1941 (12-20). [R.]
- VII, 3    **631.468 : 631.417.2** **Franz, H.** Formation of humus from plant residues and manures by animalcules. *Bodenk. Pflernähr.* 32, 1943 (336-351). [G.]
- VI, 4    **631.468 : 631.417.2** **Meyer, L.** Experiments on macrobiological influences on humus and soil formation. *Bodenk. Pflernähr.* 29, 1943 (119-139). [G.]
- V, 6    **631.468 : 631.452**—**Franz, H.** Investigations concerning the importance of the soil fauna in the maintenance and improvement of soil fertility. *ForschDienst.* 13, 1942 (320-333). [G.]
- VII, 1    **631.468 : 634.9** **Lindquist, B.** Influence of certain land molluscs in the decomposition of forest detritus. *Kel. Fysiogr. Sällsk. Lund. Förh.* (1941) 11, 1942 (144-156). *For. Abs.* 5 (88).
- VII, 2    **631.468 : 634.9** **Eaton, T. H., Jr.** Biology of a mull-forming millipede, *Apheloria cornacea* (Koch). *Amer. Midl. Nat.* 29, 1943 (713-723). *Biol. Abs.* 17 (2250).

## 631.47 SURVEYING. MAPPING

- 631.47—Kellogg, C. E.** Soil classification and cartography in relationship to other soil research. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (339-342).
- 631.47—Kellogg, C. E.** The theory of land classification. I. The contributions of soil science and agronomy to rural land classification. *Missouri Agric. Expt. Sta. Bull.* 421, 1940 (164-173).
- 631.47—Krusekopf, H. H.; Albrecht, W. A.; Bradfield, R.** Land classification in relation to the soil and its development. *Missouri Agric. Expt. Sta. Bull.* 421, 1940 (39-57).
- 631.47—Storie, R. E.** The classification of natural land divisions and the application of this classification to land use and conservation. *Proc. Sixth Pacific Sci. Cong.* 4, 1940 (867-868). *Herb. Abs.* 12 (118).
- 631.47—Allison, R. V.** The relationship of soil science to land-use planning. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (17-23). *Biol. Abs.* 15 (2072).
- V, 5    **631.47—National Resources Planning Board.** Land classification in the United States. *Rept. Natl. Resources Plan. Bd.* 1941, pp. 151.
- V, 6    **631.47—Oliphant, J. N.** Planning for conservation. *Farm and Forest* 2, 1941 (117-124).
- 631.47—Watkins, W. F.** Land-use planning and the agronomist. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (357-361). *Biol. Abs.* 16 (219).
- VI, 2    **631.47—Hills, G. A.** An approach to land settlement problems in Northern Ontario. *Sci. Agric.* 23, 1942 (212-216).
- VI, 3    **631.47—McIntyre, A. C.** A new classification procedure for agricultural land according to use capabilities and its importance to forestry. *J. Forestry* 40, 1942 (936-939). *For. Abs.* 4 (260).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.47—Orvedal, A. C.; Edwards, M. J.** General principles of technical grouping of soils. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (386-391). V, 5
- 631.47 Lee, W. D.** Land cover in relation to water control and utilization in the Upper French Broad River watershed. *N.C. Agric. Expt. Sta. Bull.* 339, 1943, pp. 70. E.S.R. 90 (447). VII, 3
- 631.47—McAmis, J. C.** The soil survey in a unified regional program of development. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (430-433).
- 631.47 Morgen, H.** The concept of the agricultural landscape. *ForschDienst.* 15, 1943 (151-155). [G.] VII, 1
- 631.47 Ross, J. C.** Utilization of arable land. *Farm. S. Africa* 18, 1943 (625-626, 636). VII, 3
- 631.47 Schwenkel, H.** Care of the landscape and agriculture. *ForschDienst.* 15, 1943 (418-438). [G.] VII, 1
- 631.47 Storie, R. E.; Weir, W. W.** The use of soil maps for assessment purposes in California. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (416-418). Biol. Abs. 17 (1961). VII, 1
- 631.47 Taylor, J. K.** Surveys for potential land use. *J. Aust. Inst. Agric. Sci.* 10, 1944 (20-25). VII, 3
- 631.47 : 33 Albright, W. D.** An economic pioneer land settlement policy. *Sci. Agric.* 23, 1942 (211).
- 631.47 : 33 Rothkegel, W.** The evaluation of the results of soil assessment. *ForschDienst.* 17, 1944 (71-84). [G.]
- 631.47 : 34 Wernimont, K.** State rural land use legislation in 1939. *J. Land Pub. Util. Econ.* 16, No. 1, 1940 (110-116). E.S.R. 84 (405).
- 631.47 : 551.3.051 Garin, A. N.; Gabbard, L. P.** Land use in relation to sedimentation in reservoirs, Trinity River Basin, Texas. *Tex. Agric. Expt. Sta. Bull.* 597, 1941, pp. 65.
- 631.47 : 581.5 Marks, J. B.** Land use and plant succession in Coon Valley, Wisconsin. *Ecol. Monog.* 12, 1942 (113-133). Biol. Abs. 16 (2155).
- 631.47 : 581.5 Sears, P. B.** The ecological basis of land use and management. *Proc. Eighth Amer. Sci. Cong.* 5, 1942 (223-233). Biol. Abs. 17 (2252).
- 631.47 : 581.5 Walter, H.** The importance of ecological research for the opening-up of the Colonies. *ForschDienst.* 13, 1942 (104-111). [G.]
- 631.47 : 631.43 Conrey, G. W.** Primary soils features considered in land classification. *Missouri Agric. Expt. Sta. Bull.* 421, 1940 (33-38). IV, 3
- 631.47 : 631.44 Krantz, B. A.** Correlation of soil types with present land use. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (309-312). IV, 6
- 631.47 : 631.445.7 Vageler, P.** Colonial soil science and agricultural planning. *Berlin* 1941, pp. 16. [G.]
- 631.47 : 631.459 Norton, E. A.** Land classification as an aid in soil conservation practices. *Missouri Agric. Expt. Sta. Bull.* 421, 1940 (293-304). IV, 3
- 631.47 : 631.459—Selgworth, K. J.; Snyder, J. E.** Further notes on work unit erosion control surveys. *J. Forestry* 39, 1941 (693-695). For. Abs. 3 (197). V, 3



# BIBLIOGRAPHY OF SOIL SCIENCE

- VI, 3     **631.47 : 631.459** Hockensmith, R. D.; Steele, J. G. Classifying land for conservation farming. *U.S.D.A. Farm Bull.* 1853, 1943, pp. 45.  
      **631.47 : 631.459** Shoesmith, L. Use of soil conservation surveys in farm planning. *N. Pak. Agric. Expt. Sta. Bmo. Bull.* 6, 1943 (13-15). E.S.R. 90 (306).
- VI, 4     **631.47 : 631.67** Blanch, G. T.; Stewart, C. E. Utilization of irrigable land in the reservation area of Uinta Basin, Utah. *Utah Agric. Expt. Sta. Bull.* 303, 1943, pp. 53.
- IV, 1     **631.471** Brown, L. A. Type of physical survey adequate for the high plains. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (370-371).
- IV, 1     **631.471** Orvedal, A. C. Problem of detail in the soil survey in the Tennessee Valley area. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (387-389).
- IV, 6     **631.471** Bell, A. P. Single characteristic maps based on soil survey data. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (313-315).
- IV, 6     **631.471** Brown, L. A. Classifying soil series and recording their limitations. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (322-323).
- V, 2     **631.471** Csiky, J. Field surveying for agricultural soil mapping. *Moeg. Kutat.* 14, 1941 (214-220). [Hc.]
- VI, 1     **631.471** Teakle, L. J. H.; Burrill, G. H.; Carroll, D. Some aspects of modern soil surveying. *Aust. J. Sci.* 4, 1941 (40-44). Herb. Abs. 12 (193).
- 631.471** Johnsgard, G. A. A method of presenting soil survey data on maps. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (383-385).
- VII, 1    **631.471** Doane, D. H. Soil science and its practical application. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (3-6).
- V, 3     **631.471 : 631.4.061.6** Fatus, G. K. On a method of field study and cartography of soils. *Vegetology* No. 1, 1941 (72-76). [Rg.]
- IV, 6     **631.471 : 631.445.7** Vageler, P. Rational principles and methods of soil surveying of virgin lands in the tropics and sub-tropics. *Bodenk. Pflanzendr.* 17, 1940 (1-28). Biol. Abs. 15 (1410). [G.]
- IV, 6     **631.471 : 631.459** Uhland, R. E. Field method for evaluating effects of physical factors and farm management practices on soil erosion and crop yields. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (372-376).
- VI, 3     **631.471 : 631.459** Taylor, J. K.; Stephens, C. G. Note on the mapping of soil erosion. *Aust. J. Countr. Sci. Indust. Res.* 16, 1943 (33-36).
- IV, 6     **631.471 : 631.67** Weir, W. W.; Storie, R. E. The use of soils information on the Central Valley Project, California. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (366-371).
- IV, 1     **631.471 : 778.35** Buckhannan, W. H. Technic and use of aerial photographs for soil mapping and reproduction of field maps. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (382-386).  
      **631.472 : 581.144.2** Lutz, H. J.; Ely, J. B., Jr.; Little, S., Jr. The influence of soil profile horizons on root distribution of white pine (*Pinus strobus* L.). *Yale Univ. Sch. Forestry Bull.* 44, 1937, pp. 115.  
      **631.472 : 631.43** Nikiforoff, C. C. Soil morphology and soil physics. *Amer. J. Phys.* 9, 1941 (346-356). C.A. 36 (861).

## FERTILIZERS AND GENERAL AGRONOMY

- 631.472 : 631.452** Latham, E. E. Relative productivity of the A horizon of Cecil sandy loam and the B and C horizons exposed by erosion. *J. Amer. Soc. Agron.* 32, 1940 (950-954). IV, 3
- 631.472 : 631.452** Rost, C. O. The relative productivity of humid subsoils. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (281-287). IV, 1
- 631.472 : 631.452** Joffe, J. S. Soil-forming processes: pedology in the service of soil science. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (68-77).
- 631.472 : 77.03** Soil Science Society of America. Report of committee on exchange of soil pictures and soil profiles. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (496-498). VII, 1
- 631.472.005**—Cero, M. M. Preparation of wet soil profiles with Thai adhesives. *Thai Sci. Bull.* 2, No. 3-4, 1940 (139-157). IV, 5
- 631.472.005** Gračanin, M.; Janeković, E. The Zagreb film-lacquer method of taking pedological soil-profile samples. *Soil Rev.* 7, 1940 (22-32). C.A. 34 (7505). IV, 2
- 631.472.005** Lyford, W. H., Jr. Preservation of soil profiles by Voght's method. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (355-357). IV, 1
- 631.472.005** McClure, G. M.; Converse, C. D. A method for taking and mounting monolithic soil profile samples. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (120-121). IV, 1
- 631.472.005** Paulsen, E. F.; Reichart, M. A. L.; Abitbol, J., et al. A noteworthy method of obtaining soil profiles. *J. Agron.* 1941 (331-342). [Spec.]
- 631.472.005**—Drosdoff, M. Preparing soil profile mounts: method and demonstration. *Proc. Amer. Soc. Hort. Sci.* (1942) 40, 1942 (30).
- 631.472.005** Storie, R. E. A museum of California soils. *Calif. Citogr.* 27, 1942 (190-209). C.A. 36 (5933).
- 631.472:083.72** Hsiung, Y. A proposed nomenclature of soil horizons. *Soil Mem. Geol. Surv. Kiangsi* No. 2, 1942 (33-47). [Ch.e.] VII, 3

## 631.48 SOIL FORMATION

- 631.48** Nikiforoff, C. C. Soil dynamics. *Sci. Mo. New York* 52, 1941 (422-429).
- 631.48** Nikiforoff, C. C. Fundamental formula of soil formation. *Amer. J. Sci.* 240, 1942 (847-866). C.A. 37 (1545).
- 631.48** Thorp, J. The influence of environment on soil formation. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (39-46).
- 631.48** Chatterjee, B.; Sen, A. Properties of synthetic mixtures of colloidal solutions of silicic acid and aluminium hydroxide. I. *Indian J. Agric. Sci.* 13, 1943 (59-65). VI, 4
- 631.48** Raychaudhuri, S. P.; Miah, A. H. A preliminary study of the ageing of alumina and silica gels and of the precipitates obtained from mutual coagulation of alumina and silicic acid sols. *J. Indian Chem. Soc.* 20, 1943 (195-196). VII, 2
- 631.48** Lichkov, B. L. Sediment formation, its causes and effects. *Pedology* No. 1, 1944 (29-39). [R.e.] VII, 4
- 631.48 : 549**—Marshall, C. E. A petrographic method for the study of soil formation processes. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (100-103). IV, 6

## BIBLIOGRAPHY OF SOIL SCIENCE

- VII. 1 **631.48 : 549--Marshall, G. E.; Haseman, J. F.** The quantitative evaluation of soil formation and development by heavy mineral studies: a Grundy silt loam profile. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (448-453). Biol. Abs. 17 (2182).
- VII. 4 **631.48 : 551.311.33 Denisov, N. Ya.** On the origin of settling loess-like loams. *C.R. Acad. Sci. (U.S.S.R.)* 41, 1943 (123-125). [E.]
- VII. 3 **631.48 : 551.311.33 Sokolovsky, A. N.** Loess as a product of soil formation. *Pedology* No. 9-10, 1943 (3-23). [R.e.]
- VII. 4 **631.48 : 551.311.33 Sokolovsky, A. N.** Some notes on loess. *C.R. Acad. Sci. (U.S.S.R.)* 40, 1943 (78-80). [E.]
- VII. 4 **631.48 : 551.311.33 Russell, R. J.** Lower Mississippi Valley loess. *Bull. Geol. Soc. Amer.* 55, 1944 (1-40). E.S.R. 90 (588).
- VI. 2 **631.48 : 551.41 Rozmakhov, I. G.** Development of soil complexes. *Trans. Dokuchaev Inst.* 22, 1940 (31-89). *Pedology* No. 1, 1942 (55).
- V. 3 **631.48 : 551.41 Smirnova, K. M.** The complex nature of the soil cover in the Kursk virgin steppes. *Pedology* No. 5, 1941 (44-61). [R.e.]
- 631.48 : 551.41 Smith, G. D.** Advantages and problems related to the field study of soil developments. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (78-82).
- VII. 4 **631.48 : 551.41 Spilsbury, R. H.; Tisdale, E. W.** Soil-plant relationships and vertical zonation in the southern interior of British Columbia. *Sci. Agr.* 24, 1944 (395-436).
- 631.48 : 551.58 Joffe, J. S.** Climate sequences of the post-Wisconsin glacial age as revealed in the soil profile. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (368-372).
- 631.48 : 551.58 -Vanderford, H. B.; Albrecht, W. A.** The development of loessial soils in central United States as it reflects differences in climate. *Missouri Agric. Expt. Sta. Res. Bull.* 345, 1942, pp. 31. C.A. 36 (6283).
- 631.48 : 552.323 Hardy, F.; Rodrigues, G.** Soil genesis from fragmental volcanic rocks in the Lesser Antilles. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (47-51).
- 631.48 : 581.5 Karpechenko, D. P.** The rôle of plant associations in soil formation. *Dokl. Akad. S.-Kh. Nauk* No. 16, 1940 (3-6).
- IV. 5 **631.48 : 581.5 Oosting, W. A. J.** Determination of the age of arable land on the Pleistocene and the problem of manuring with turves. *Landbouwk. Tijdschr.* 52, 1940 (695-703). Biol. Abs. 15 (986).
- VII. 4 **631.48 : 581.5 Kovda, V. A.** Biological cycles of the movement and accumulation of salts. *Pedology* No. 4-5, 1944 (144-158). [R.e.]
- VII. 1 **631.48 : 631.416 Morgan, G. G.; Obenshain, S. S.** Genesis of three soils developed from materials residual from limestone. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (441-447). Biol. Abs. 17 (2182).
- IV. 6 **631.48 : 631.432 Krauss, G.; Müller, K.; Gärtner, G.** Effecting the changeover from spruce management in the lowlands of north-west Saxony (with special observations on gley formation). *Tharandt Jahrb.* 90, 1939 (481-715). For. Abs. 3 (38). [G.]
- VII. 2 **631.48 : 631.432--Crha, B.** The chemical composition of the gley soils in the Schwarza and Jihlava valleys in Moravia. *Shorn. Čsl. Akad. Zeměd.* 15, 1940 (64-68). C.A. 37 (489).

## FERTILIZERS AND GENERAL AGRONOMY

- 631.48 : 631.432**—**Albrecht, W. A.** Calcium saturation and anaerobic bacteria as possible factors in gleization. *Soil Sci.* 51, 1941 (213-217). IV, 4
- 631.48 : 631.432**—**Endrédy, E.** A reaction for the identification of gley-like soil layers. *Mezőg. Kutat.* 14, 1941 (109-112). C.A. 35 7611). VI, 3
- 631.48 : 634.9**—**Scaetta, H.** Role of the wet forest of the Ivory Coast in the capture of atmospheric dust particles and the reconstitution of clay colloids in the soil. *C.R.* 212, 1941 (273-276). For. Abs. 4 (261). [F.] VI, 3
- 631.483**—**Sedletsky, I. D.** Colloid-dispersion mineralogy, its problems and methods. *C.R. Acad. Sci. (U.S.S.R.)* 34, 1942 (165-170). C.A. 37 (1350). VII, 1
- 631.483**—**Sedletsky, I. D.** Colloid-disperse minerals of the main soil types. *Pedology* No. 3-4, 1942 (61-72). [R.e.] VI, 2
- 631.483**—**Penningsfeld, F.** The weathering process and the formation of soil profiles. *Bodenk. Pfl.Ernähr.* 31, 1943 (1-10). C.A. 38 (2777). [G.] VII, 4
- 631.483 : 551.763**—**Cole, W. F.** X-ray analysis (by the powder method) and microscopic examination of the products of weathering of the Gungu Upper Greensand. *J. Roy. Soc. W. Aust.* 27 (1940-41) 1942 (229-243). VI, 3
- 631.483 : 552.323**—**Galvez, N. L.** A study on the nature of weathering of volcanic tuffs under Los Baños conditions. *Philipp. Igeist.* 29, 1940 (226-237). IV, 3
- 631.483 : 631.414.2**—**Graham, E. R.** Acid clay: an agent in chemical weathering. *J. Geol.* 49, 1941 (392-401). C.A. 36 (373). VI, 3
- 631.483 : 631.414.2**—**Vilas, L. L.** Chemical composition and conditions of formation of Spanish clays. *An. Inst. Edafol.* 1, 1942 (7-120). [Sp.g.] VII, 3
- 631.483 : 631.416**—**Gallagher, P. H.; Walsh, T.** Solubility of soil constituents in oxalic acid as index to effects of weathering. *Proc. Roy. Irish Acad.* 49B, 1943 (1-26). B.C.A.B. III, 1943 (141). VI, 4

## 631.5 CULTURAL OPERATIONS

- 631.51**—**Russell, E. W.; Keen, B. A.** Studies in soil cultivation. X. The results of a six-year cultivation experiment. *J. Agric. Sci.* 31, 1941 (326-347). IV, 5
- 631.51**—**Keen, B. A.** Physical research on problems of soil cultivation. *Endeavour* 1, 1942 (52-63).
- 631.51**—**Keen, B. A.** Soil physics: theory and practice. Part I. Soil physics: its scope in agriculture. Part II. Soil cultivation: art or science? Part III. Cultivation and crop yields. *J. Roy. Soc. Arts* 90, 1942 (545-579).
- 631.51 : 631.416**—**Fedulaev, A. L.** Cultivation of soils. *Tekhn. Kul.* No. 11-12, 1939 (39-42). C.A. 36 (6285). VI, 2
- 631.51 : 631.416**—**Stephenson, R. E.; Schuster, C. E.** Soil properties of tilled orchards compared with untilled areas. *Soil Sci.* 54, 1942 (325-334). VI, 2
- 631.51 : 631.43**—**Sóltész, S.** Changes in the physical nature of the soil in shallow and deep stubble ploughing. *Magyar Kir. Gazdas. Akad. Munk.* (1939) 2, 1940 (137-166). Biol. Abs. 15 (987). IV, 5

# BIBLIOGRAPHY OF SOIL SCIENCE

- VII, 3 631.51 : 631.43 Thomas, A. T. To hoe or not to hoe. *E. Africa Agric. J.* 9, 1944 (185-186).
- IV, 3 631.51 : 631.432.21 Eksteen, L. L.; Van der Spuy, M. J. Effect of the soil mulch. *Farm. S. Africa* 16, 1940 (51-52, 56).
- V, 4 631.51 : 631.452 Morgenroth, E. The importance of the depth of cultivation in relation to soil fertility, on the basis of general experience and the results of the continuous experiments at Dahlem. *Bodenk. Pflanzk.* 26, 1941 (14-72). [G.]
- VI, 2 631.51 : 631.459 Mech, S. J.; Free, G. R. Movement of soil during tillage operations. *Agric. Engng.* 23, 1942 (379-382).
- IV, 3 631.51 : 631.472 Egorov, V. Theory and practice of the formation of a deep arable layer. *Sov. Agron.* No. 8-9, 1940 (45-49). [R.]
- IV, 4 631.51 : 631.557 Hume, A. N. Depth of plowing and crop yields. *S. Afr. Agric. Expt. Sta. Bull.* 344, 1940, pp. 23. E.S.R. 84 (179).
- VII, 4 631.51 : 631.557 Opitz, K. The influence of working of the soil on the yield. *Mitt. Landw.* 57, 1942 (800-802). C.A. 38 (3403).
- V, 6 631.51 : 631.557 Russell, E. W.; Keen, B. A.; Mann, H. H. Studies in soil cultivation. XI. The effect of inter-tillage on the sugar beet crop. *J. Agric. Sci.* 32, 1942 (330-337).
- VII, 3 631.51 : 631.557 Hume, A. N. Crop yields as related to depth of plowing. *S. Afr. Agric. Expt. Sta. Bull.* 369, 1943, pp. 12. E.S.R. 90 (472).
- IV, 3 631.51 : 632.51 Pereira, H. C. Crop response to inter-row tillage. *Eng. J. Expt. Agric.* 9, 1941 (29-42).
- VI, 1 631.51 : 632.51 Hofmeyr, J. H. Soil cultivation and increased production. *Farm. S. Africa* 17, 1942 (721-726).
- 631.512 Gordon, E. D. Physical reactions of soil on plow disks. *Agric. Engng.* 22, 1941 (205-208). E.S.R. 87 (122).
- 631.512 National Institute of Agricultural Engineering. Tractor ploughing. *Natl. Inst. Agric. Engng.* 1944, pp. 41.
- 631.512 White, C. E. Another answer to "Plowman's Folly." *Agric. Engng.* 25, 1944 (95).
- VII, 3 631.512 : 631.312.5 Norton, R. A.; Collins, E. V.; Browning, G. M. Present status of the plow as a tillage implement. *Agric. Engng.* 25, 1944 (7-10).
- 631.513 Swarbrick, T. Hedge and tree stump clearing. *Min. Agric. Bull.* 101, 1942, pp. 13. For. Abs. 4 (235).
- 631.513 Stevens, C. P. Blasting for food. *Soil Conservation* 10, 1944 (9-11).
- V, 2 631.514 Yurin, G. A. Effect of spring harrowing and top-dressing on yields of autumn sown crops. *Storn. Rab. Chelabinsk. S.-Kh. Opvt. Sta.* 1, 1939 (41-47). [R.]
- V, 2 631.515 Shevliagin, A. I. Rolling as a method of soil cultivation before sowing. *Storn. Rab. Chelabinsk. S.-Kh. Opvt. Sta.* 1, 1939 (253-269). [R.]
- VI, 1 631.516 Keen, B. A. Hoeing. *J. Roy. Hort. Soc.* 67, 1942 (323-328).
- 631.516 : 631.544.7 Saunders, A. R. Cultivation and the soil mulch. *Farm. S. Africa* 19, 1944 (295-298, 344).
- IV, 2 631.531—Savel'ev, N. M. Influence of sowing in shallow furrows and subsequent earthing-up on yields. *Dokl. Akad. S.-Kh. Nauk* No. 11, 1940 (29-32). [R.]

# FERTILIZERS AND GENERAL AGRONOMY

**631.531 : 631.432.2—Dungan, G. H.; Brokaw, W. C.** Relation between moisture content of the soil and the optimum depth of planting corn. *Trans. Ill. St. Acad. Sci.* 34, 1942 (46-47). Biol. Abs. 16 (1430).

**631.544.3—Reinhold, J.** Materials capable of diluting and substituting horse dung in hot-beds. *ForschDienst.* 12, 1941 (585-591). [G.]

**631.544.3—Binkley, A. M.** Starting vegetable plants in Colorado. *Colo. Agric. Expt. Sta. Bull.* 475, 1943, pp. 24.

**631.544.3 : 631.588.1 Edmond, J. B.; Dunkelberg, G. H.** Experiments with electricity in sweet potato plant production. *Proc. Amer. Soc. Hort. Sci.* (1939) 37, 1940 (855-856). Hort. Abs. 10 (278).

**631.544.3 : 631.588.1—Brown, C. A. C.; Golding, E. W.** Simplified electrically heated hotbeds. *Brit. Elect. Res. Ass. Tech. Rept. Ref. W77*, 1942, pp. 24. Hort. Abs. 13 (16).

**631.544.3 : 631.588.1—Porter, A. M.; Odland, M. L.** The influence of methods of heating and covering electric hotbeds on field production of vegetables. *Proc. Amer. Soc. Hort. Sci.* 41, 1942 (251-254). VII, 1

**631.544.3 : 631.841.5—Deshusses, L. A.** Experiments with the formation of hotbeds without horse manure. *Rev. Hort. Suisse* 13, 1940 (243-246, 262-268). Hort. Abs. 11 (118). IV, 5

**631.544.7—Reinhold, J.** Communal tests of the "Wega" soil covering. *ForschDienst.* 13, 1942 (129-138). [G.] V, 6

**631.544.7 : 553.985—Myers, H. E.; Throckmorton, R. I.** Some experiences with asphalt in the establishment of grasses and legumes for erosion control. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (459-461). V, 5

**631.544.7 : 581.192—Baker, C. E.** Further results on the effect of different mulching and fertilizer treatments upon the potassium content of apple leaves. *Proc. Amer. Soc. Hort. Sci.* 42, 1943 (7-10). VII, 1

**631.544.7 : 631.416—Karnaukhov, B. G.** Effect of mulching on the moisture content and dynamics of water-soluble and nutrient matter in Azov chernozem. *Trudy Rostov. Otd. Biol. Oshch.* No. 3, 1939 (25-46). *Pedology* No. 1, 1941 (108). V, 3

**631.544.7 : 631.416—Wander, I. W.; Gourley, J. H.** Effect of heavy mulch in an apple orchard upon several soil constituents and the mineral content of foliage and fruit. *Proc. Amer. Soc. Hort. Sci.* 42, 1943 (1-6). VII, 1

**631.544.7 : 631.416.13—McCalla, T. M.; Russel, J. C.** Nitrate production as affected by grain-crop residues on the surface of the soil. *Neb. Agric. Expt. Sta. Res. Bull.* 131, 1943, pp. 21. E.S.R. 89 (633). VII, 1

**631.544.7 : 631.43—Deshevkyh, G. D.** The effect of a peat mulch on the alteration of certain physical and chemical properties of heavy clay podzol soils. *Pedology* No. 6, 1941 (49-58). [R.] V, 3

**631.544.7 : 631.432.3—Beutner, E. L.; Anderson, D.** The effect of surface mulches on water conservation and forage production in some semidesert grassland soils. *J. Amer. Soc. Agron.* 35, 1943 (393-400). VI, 4

## BIBLIOGRAPHY OF SOIL SCIENCE

- VI, 3    **631.544.7 : 631.432.3** Kidder, E. H.; Stauffer, R. S.; Van Doren, C. A. Effect on infiltration of surface mulches of soybean residues, corn stover, and wheat straw. *Agric. Engng.* 24, 1943 (155-159).
- IV, 6    **631.544.7 : 631.459** Hendrickson, B. H.; Crowley, R. B. Preliminary results with mulches applied to eroded wasteland sown to lespedeza. *J. Amer. Soc. Agron.* 33, 1941 (690-694).
- 631.544.7 : 631.459** Peele, T. C. Influence of organic mulches and incorporated organic matter on runoff, erosion, soil structure and microbial activity. *Proc. Assoc. S. Agric. Workers* 43, 1942 (72-73). C.A. 37 (4820).
- V, 2    **631.547.1 : 523.32** Mather, K.; Newell, J. Seed germination and the moon. *J. Roy. Hort. Soc.* 66, 1941 (358-366). Hort. Abs. 11 (268).
- V, 5    **631.547.1 : 523.32** Mather, M. The effect of temperature and the moon on seedling growth. *J. Roy. Hort. Soc.* 67, 1942 (264-270).
- 631.547.1 : 631.81** Alten, F.; Schulte, E. The influence of manuring on the course of germination of cereal grains. *Landw. Pol.* 37, 1941 (13-21, 25-28). [G.]
- V, 1    **631.547.2 : 523.32** Bergdolt, E.; Spanner, L. A critical investigation of the alleged susceptibility of plant yields to lunar influences. *Isotop. Praktika* 20, 1940 (279-284). Landw. Abs. 11 (55). [G.]
- 631.547.2 : 523.32** Whinnett, S. Moon phase sowings. *Gard. Chron.* 110, 1941 (224). Biol. Abs. 18 (578).
- VII, 1    **631.547.2 : 547.292** Miller, E. V.; Jacob, K. D. Effect of sodium acetate on plant growth and soil pH value as indicated by greenhouse experiments. *J. Amer. Soc. Agron.* 35, 1943 (909-910).
- IV, 6    **631.547.2 : 577.16** Donnelly, M. Effects of vitamin B<sub>1</sub> on woody erosion-control plants. *Science* 94, 1941 (71-72).
- IV, 2    **631.548** Arnon, D. I.; Hoagland, D. R. Crop production in artificial culture solutions and in soils with special reference to factors influencing yields and absorption of inorganic nutrients. *Soil Sci.* 50, 1940 (463-485).
- V, 1    **631.548** Davidson, O. W. The maintenance of effective nutrient levels for the soilless culture of roses. *Proc. Amer. Soc. Hort. Sci.* 1939; 37, 1940 (993-997). F.S.R. 85 (200).
- 631.548** Laurie, A.; Kiplinger, D. C. Growing ornamental greenhouse crops in gravel culture. *Ohio Agric. Expt. Sta. Bull.* 616, 1940, pp. 49.
- 631.548** Woodman, R. M. The effect of the concentration of the culture solution on vegetables grown in sand. *Ann. Appl. Biol.* 27, 1940 (445-452). Hort. Abs. 11 (22).
- 631.548** Eaton, F. M. Plant culture equipment. *Plant Physiol.* 16, 1941 (385-392).
- 631.548—Pillai, S. C.** A new aspect of hydroponics: "hanging gardens" in the activated sludge tank. *Chem. Sci.* 10, 1941 (85).
- 631.548—Stoughton, R. H.** Soilless cultivation of plants. *J. Roy. Hort. Soc.* 66, 1941 (17-24).
- 631.548** Templeman, W. G. Culture of plants in sand and in solutions. *Jealott's Hill Res. Sta. Bull.* 2, 1941, pp. 28.
- 631.548—Stoughton, R. H.** Soilless cultivation. A review of recent progress. *J. Min. Agric.* 49, 1942 (25-29).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.548 Stoughton, R. H.** Soil-less cultivation. *Carnation Yrbk.* 1943 (30-31).
- 631.557:551.577 Myers, H. E.** Soil moisture and winter wheat in Kansas. *Trans. Kans. Acad. Sci.* 43, 1940 (69-73). Biol. Abs. 15 (647). IV, 4
- 631.557:551.577 Pallesen, J. E.; Laude, H. H.** Seasonal distribution of rainfall in relation to yield of winter wheat. *U.S.D.A. Tech. Bull.* 761, 1941, pp. 11. Biol. Abs. 15 (874).
- 631.557:551.58 Baumann, H.** The effects of climate and weather on cereal yields. *Forsch.Digest.* 10, 1940 (249-265). [G.]
- 631.557:551.58 Davis, F. E.; Harrell, G. D.** Relation of weather and its distribution to corn yields. *U.S.D.A. Tech. Bull.* 806, 1942, pp. 67.
- 631.557:631.44 Smith, G. D.; Smith, R. S.** A study of crop-yield records by soil types and soil ratings. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (375-377). IV, 1
- 631.58 Watson, J. A. S.** The maintenance of soil fertility. *Trans. Highland Agric. Soc. Scot.* 53, 1941 (1-25). Herb. Abs. 12 (4).
- 631.58 Mansfield, W. S.** The maintenance of fertility in arable land. *J. Min. Agric.* 48, 1942 (191-194). Herb. Abs. 12 (146).
- 631.58:551.58 Kreutz, W.** Methods of modifying climatic conditions. Practical data from Germany and the Ukraine. *Forsch.Digest.* 15, 1943 (256-281). [G.] VII, 1
- 631.58:581.192 Baker, C. E.** The effect of different methods of soil management upon the potassium content of apple and peach leaves. *Proc. Amer. Soc. Hort. Sci.* (1941) 39, 1941 (33-37). Hort. Abs. 12 (20). V, 4
- 631.58:631.445.7 Faulkner, O. T.** 'Mixed farming' in the tropics: a definition of the term. *Trop. Agric. Trin.* 19, 1942 (17-19).
- 631.581 Culpin, C.** Fallows. *J. Min. Agric.* 48, 1942 (216-220).
- 631.581 Mann, H. H.** The influence of fallowing on the yield of wheat or barley on very exhausted land. *J. Agric. Sci.* 33, 1943 (207-212). VII, 2
- 631.581 Mansfield, W. S.** Short fallows. *J. Min. Agric.* 50, 1943 (175-178).
- 631.581:631.584 Verbin, A. A.** Utilization of fallows for crops following stubble. *Dokl. Akad. S.-Kh. Nauk* No. 14, 1940 (15-17). [R.] IV, 2
- 631.581:631.586 Burns, W.** Fallows. *Indian Farm.* 1, 1940 (417-419).
- 631.581:631.586 Throckmorton, R. L.; Myers, H. E.** Summer fallow in Kansas. *Kans. Agric. Expt. Sta. Bull.* 293, 1941, pp. 30.
- 631.581:633.51 Crowther, F.; Cochran, W. G.** Rotation experiments with cotton in the Sudan Gezira. *J. Agric. Sci.* 32, 1942 (390-405). VI, 1
- 631.582 Salter, R. M.; Lill, J. G.** Crop sequence studies in northwestern Ohio. *J. Amer. Soc. Agron.* 32, 1940 (627-630). Biol. Abs. 14 (1467).
- 631.582-Chen, H. Y.; Arny, A. C.** Crop rotation studies. *Minn. Agric. Expt. Sta. Tech. Bull.* 149, 1941, pp. 46. Biol. Abs. 16 (982).



# BIBLIOGRAPHY OF SOIL SCIENCE

- IV, 4      **631.582—Ripley, P. O.** The influence of crops upon those which follow. *Sci. Agric.* 21, 1941 (522-583).
- VII, 2    **631.582—Smith, G. E.** Sanborn Field: Fifty years of field experiments with crop rotations, manure, and fertilizers. *Missouri Agric. Expt. Sta. Bull.* 458, 1942, pp. 61. *Missouri Agric. Expt. Sta. Circ.* 247, 1942, pp. 15. E.S.R. 89 (417).
- 631.582—Conrey, G. W.** Crop succession—a study in land use. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (312-315). Biol. Abs. 17 (2171).
- VII, 2    **631.582 : 631.459—Chizhevsky, M. G.** Crop rotations in the areas susceptible to drought in U.S.S.R. *Vest. S.-Kh. Nauk. Agro-tekhn.* No. 1, 1940 (44-58). Herb. Abs. 13 (214).
- IV, 3      **631.582 : 631.459—Gerdel, R. W.** Soil losses from cultivated strips in strip-cropped fields in the Ohio Valley Region. *U.S.D.A. Circ.* 588, 1940, pp. 23.
- V, 2       **631.582 : 631.459—Gerdel, R. W.; Allen, R. E.** Application of the erosion equation to strip crop planning. *Agric. Engng.* 22, 1941 (59-61, 64).
- 631.582 : 631.459—Zeasman, O. R.** Strip cropping to control erosion. *Wis. Univ. Ext. Serv. Coll. Agric. Circ.* 317, 1941, pp. 15.
- 631.582 : 631.459—Carreker, J. R.** Crop rotation as a factor in soil erosion control. *Agric. Engng.* 23, 1942 (190-192).
- 631.582 : 631.459—Tower, H. E.; Gardner, H. H.** Strip cropping for war production. *U.S.D.A. Farm. Bull.* 1919, 1943, pp. 46.
- VII, 2    **631.582 : 631.67—Hansen, D.; Post, A. H.** Irrigated crop rotations, Huntley Branch Station, Huntley, Montana. *Mont. Agric. Expt. Sta. Bull.* 414, 1943, pp. 38. E.S.R. 89 (657).
- IV, 3      **631.582 : 631.81—Lut, F. A.** Organic and mineral fertilizers in the crop rotation. *Soviet Agron.* No. 8-9, 1940 (42-49). [R.]
- 631.582 : 631.81—Oldershaw, A. W.** Experiments on arable crops at Saxmundham. *J. Roy. Agric. Soc. England* 102, 1941 (136-155).
- VI, 1      **631.582 : 631.81—Williams, C. B.; Rankin, W. H.; Hendricks, J. W.** Soil fertility studies in the Piedmont.—I. The effects of limestone and fertilizers in a 4-year rotation. *N.C. Agric. Expt. Sta. Bull.* 331, 1942, pp. 36. E.S.R. 87 (344).
- 631.584—Ayyangar, G. N. R.; Ayyar, M. A. S.** Rotation and mixed crops with sorghum. *Madras Agric. J.* 29, 1941 (57-63). Herb. Abs. 11 (212).
- 631.584—Benaiges Aris, C.** Efficiency and principles of the Solari system. *Agricultura Madrid* 10, 1941 (211-213). Herb. Abs. 12 (22).
- 631.584—Journal of the Ministry of Agriculture.** Catch cropping. *J. Min. Agric.* 48, 1941 (7-10); *Groumore Leaf.* 65, 1941.
- 631.584—Papadakis, J. S.** Small grains and winter legumes grown mixed for grain production. *J. Amer. Soc. Agron.* 33, 1941 (504-511).
- VI, 2      **631.584—Paul, W. R. C.; Joachim, A. W. R.** Experiments on associated growth of leguminous and non-leguminous crops—I. *Trop. Agricul.* 97, 1941 (257-263).
- 631.584—Robertson, J. K.** Mixed or multiple cropping in Native agricultural practice. *E. Afric. Agric. J.* 6, 1941 (228-232).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.584—Ayyangar, G. N. R.; Ayyar, M. A. S.** Mixed cropping—a review. *Madras Agric. J.* 30, 1942, pp. 14.
- 631.584—Jones, G. H. G.** The effect of a leguminous cover crop in building up soil fertility. *E. Afric. Agric. J.* 8, 1942 (48-52). V, 6
- 631.584—Roberts, J. L.; Olson, F. R.** Interrelationships of legumes and grasses grown in association. *J. Amer. Soc. Agron.* 34, 1942 (695-701). VI, 1
- 631.584—Åberg, E.; Johnson, I. J.; Wilsie, C. P.** Associations between species of grasses and legumes. *J. Amer. Soc. Agron.* 35, 1943 (357-369). VI, 4
- 631.584—Harrison, C. M.** Grasses for cover on soils deficient in organic matter. *Mich. Agric. Expt. Sta. Quart. Bull.* 25, 1943 (318-324). F.S.R. 89 (535). VII, 2
- 631.584—Kaserer, H.** The advantages of growing mixtures. *Mitt. Landw.* 58, 1943 (267-268). Herb. Abs. 13 (316).
- 631.584 : 551.48—Alderfer, R. B.; Shaulis, N. J.** Some effects of cover crops in peach orchards on runoff and erosion. *Proc. Amer. Soc. Hort. Sci.* 42, 1943 (21-29). VII, 1
- 631.584 : 581.144.2—Shain, S. S.** Dynamics of growth of the root system of leguminous and gramineous herbage plants in pure sowings and in mixtures. *Vest. S.-Kh. Nauk. Kormodob.* No. 5, 1940 (62-71). Herb. Abs. 13 (322). VII, 2
- 631.584 : 631.416.1—Demolon, A.** Nitrogen economy in agriculture. *C.R. Acad. Agric.* 28, 1942 (371-374). C.A. 37 (4514).
- 631.584 : 631.459—Collison, R. C.; Carleton, E. A.** Orchard covers and their relation to soil conservation. *N.Y. St. Agric. Expt. Sta. Bull.* 701, 1942, pp. 33. V, 5
- 631.584 : 631.461.5—Lebedev, S. I.** Utilization of the nitrogen of nodule bacteria by hemp. *Dokl. Akad. S.-Kh. Nauk* No. 11, 1940 (33-37). [R.] IV, 3
- 631.584 : 631.461.5—Wyss, O.; Wilson, P. W.** Factors influencing excretion of nitrogen by legumes. *Soil Sci.* 52, 1941 (15-23). IV, 6
- 631.584 : 631.544.7—Toenjes, W.** The first twenty years' results in a Michigan apple orchard: cultivation-covercrop vs. sod-mulch culture. *Mich. Agric. Expt. Sta. Spec. Bull.* 313, 1941, pp. 18. F.S.R. 86 (626). V, 5
- 631.584 : 631.84—Amediek, J.** The effect of nitrogenous manuring on the development and yield of various winter catch-crops. *Pflanzenbau* 17, 18, 1941 (359-390, 9-32). *ForschDienst.* 15 (53). VII, 1
- 631.584 : 631.84—Struve, A.** Nitrogen manurial trials with summer catch crops; a contribution to the question of the yields from catch cropping. *Mitt. Landw.* 56, 1941 (536-537). *ForschDienst.* 14 (21). [G.]
- 631.586—Carter, J., Jr.** Dry farming investigations at the Mosquero Experimental Field. *N. Mex. Agric. Expt. Sta. Bull.* 265, 1939, pp. 15. B.C.A.B. III, 1942 (210).
- 631.586—Mathews, O. R.; Barnes, B. F.** Dry land crops at the Dalhart (Texas) Field Station. *U.S.D.A. Circ.* 564, 1940, pp. 68. Biol. Abs. 15 (1194).

# BIBLIOGRAPHY OF SOIL SCIENCE

- VI, 2     **631.586** —McGeorge, W. T. The productive capacity of semi-arid soils and the present emergency. *Ann. Agric. Expt. Sta. Bull.* 182, 1942 (463-496). C.A. 36 (4956). E.S.R. 87 (635).
- VII, 3     **631.586** —Myers, H. E. Dry land farming practices. *Proc. Conf. Middle East Agric. Devel. Cairo*, 1944 (23-29).
- IV, 6     **631.586; 631.416.1** Myers, H. E. Nitrogen studies on the Western Kansas Branch Experiment Stations. *Proc. Soil Sci. Soc. Amer.*, 1940: 5, 1941 (237).
- VII, 3     **631.586 ; 631.84** Peterson, H. B. Nitrogen fertilizers increase yields in tests on dry lands. *Farm and Home Sci.* 4, No. 3, 1943 (12). E.S.R. 90 (25).
- IV, 5     **631.589** Kivekäs, J. Influence of shifting cultivation with burning upon some properties of the soil. *Commun. Inst. Forest. Fenn.*, 1938-27, 1939, pp. 44. For Abs. 2 (282). Biol. Abs. 15 (892) [Fig.]
- IV, 6     **631.589** Elwell, H. M.; Daniel, H. A.; Fenton, F. A. The effects of burning pasture and woodland vegetation. *Okla. Agr. Expt. Sta. Bull.* B-247, 1941, pp. 14.
- V, 4     **631.589** Coetzee, P. J. S. Fire and veld management. Veld-burning as an agent in the 'ingongom' souwveld. *Funk. S. Africa* 17, 1942, 107-116.
- VI, 1     **631.589** Edwards, D. C. Grass-burning. *Ind. J. Expt. Agric.* 10, 1942 (219-231).
- VI, 4     **631.589** Senaratna, J. E. Patawa burning with particular reference to pasturage and wet patawas. A preliminary note. *Ind. J. Agric.* 98, No. 4, 1912 (3-16).
- 631.589** Cuarré, P. Contribution to study of problem of bush fires for Haut Katanga. *J. Ind. Agric.* 19, 1943 (118-120).
- VII, 3     **631.589** Kerr, A. J. Shifting cultivation. *Proc. Conf. Middle East Agric. Devel. Cairo*, 1944 (102-106).
- 631.589 ; 581.5** Garren, K. H. Effects of fire on vegetation of the southeastern United States. *Bol. Soc.* 9, 1943 (617-654).
- VI, 4     **631.589 ; 631.445.7** Decker, S. Burning and its harmful effects on tropical soils. *Bol. Agric. S. Paulo* 1939, pp. 31. [Pt.]
- 631.589 ; 631.459** Pendleton, R. L. Soil erosion in the tropics. *Indian Forester* 67, 1941 (150-168). Herb. Abs. 13 (3).
- VII, 2     **631.589 ; 633.52** Peive, Ya. V. Agrochemical properties of soils of land cleared by burning off and the production of high-quality fibres. *Trudy Komsomol* No. 11-12, 1940 (14-18). C.A. 37 (6389).

## 631.61 LAND RECLAMATION

- 631.61** Ripley, P. O.; Armstrong, J. M.; Kalbfleisch, W. Land clearing. *Canada Dept. Agric. Pub.* 739, 1942, pp. 43.
- 631.61 ; 33** Shantz, H. L. Economic aspects of conservation. *J. Forestry* 39, 1941 (741-747). Herb. Abs. 13 (3).
- 631.61 ; 581.5** Whyte, R. O. Conservation of natural resources. *Herb. Abs. Suppl.* 12, No. 2, 1942 (827-828).
- 631.61 ; 631.47** Johnson, N. W. Tailoring conservation research to fit the needs of farm planning. *U.S.D. Bur. Agric. Econ. F.M.* 9, 1940, pp. 12. E.S.R. 83 (835).
- 631.61 ; 631.471** Taylor, E. McK. Making land reclamation precise and profitable. *Indian Farm.* 1, 1940 (424-426).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.61 : 633.379** Rec, W. O. Hydraulic tests of kudzu as a conservation channel lining. *Agric. Engng.* 22, 1941 (27-29). E.S.R. 86 (393).
- 631.61 : 634.9** Gams, H. The economic and biocoenotic conditions for reclamation plantings. *ForschDurst* 12, 1941 (357-361). [G.]
- 631.61 : 634.9** Hufnagl, H. The relation of reclamation planting to forestry. *ForschDurst* 12, 1941 (365-369). [G.]
- 631.611** Perstein, V. M. Conversion of woodlands to meadow and pasture. *Vest. S. Kh. Nauk. Kormodol.* No. 2, 1940 (3-11). Herb. Abs. 12 (123).
- 631.611** Romashev, P. I. Surface treatment for the reclamation of meadows. *Vest. S. Kh. Nauk. Kormodol.* No. 3, 1940 (17-23). Herb. Abs. 12 (141).
- 631.611** Moore, H. I. Experiences in land reclamation, Grassland improvement trials in Yorkshire. *J. Roy. Agric. Soc. England* 102, 1941 (118-126).
- 631.611** Perstein, V. M. The system of rehabilitation of forest lands in the non-hermoxem belt of the U.S.S.R. *Vest. S. Kh. Nauk. Kormodol.* No. 1, 1941 (3-13). Herb. Abs. 14 (24).
- 631.611** West, W. J. Experiences in land reclamation. Dolfor Hill reclamation scheme. *J. Roy. Agric. Soc. England* 102, 1941 (98-104).
- 631.611** Evans, I. L.; Phillips, R. Bargod Farm, Llwyn-y-celyn: an experiment in land reclamation. *Univ. Coll. Wales, Aberystwyth* 1942, pp. 16.
- 631.611** Flory, E. L.; Marshall, C. G. Regrassing for soil protection in the Southwest. *U.S.D.A. Farm. Bull.* 1913, 1942, pp. 60.
- 631.611** Means, R. H. Preparing brush land for pastures. *Miss. Agric. Expt. Sta. Cir.* 198, 1942, pp. 7. *Miss. Farm. Res.* 5, No. 9, 1942 (1, 8). E.S.R. 88 (253).
- 631.611** Williams, J. E. Blazing the brush in Florida. *Soil Conservation* 9, 1944 (208-213).
- 631.611 : 355.01** Griffith, M. The utilisation of hill land in war time. *Sci. J. Agric.* 23, 1942 (366-372).
- 631.612** Meyer, L. A study of the agricultural utilization of areas where brown coal has been mined by open-pit methods, illustrated by an example from the Sudeben district. *Bodenk. PflKunde* 21-22, 1940 (707-722). C.A. 38 (1595).
- 631.612** Journal of the Board of Greenkeeping Research. Experiments on sand defence works. *J. Bd. Greenk. Res.* 6, 1941 (164-165).
- 631.612** Oliver, F. W. The sand-dune menace, with especial reference to Egypt. *Min. Agric. Egypt, Hort. Sect.* 1941, pp. 8.
- 631.612** Thompson-Schwab, F. Experiences in land reclamation. Hill land in North Cumberland. *J. Roy. Agric. Soc. England* 102, 1941 (126-130).
- 631.612** McLaughlin, W. T.; Brown, R. L. Controlling coastal sand dunes in the Pacific Northwest. *U.S.D.A. Circ.* 660, 1942, pp. 46.
- 631.612** Mercer, A. D. New lands for old. Possibilities in the reclamation of dredge tailings. *N.Z. J. Agric.* 65, 1942 (283-284).

# BIBLIOGRAPHY OF SOIL SCIENCE

- 631.612 : 581.5—Maloney, M. M.** Revegetation of coal stripped land near Henryetta, Okla. *Proc. Okla. Acad. Sci.* 22, 1942 (123-129). Biol. Abs. 16 (1941).
- 631.612 : 634.957—Pérez, H. M.** Dunes and afforestation. *Maderil* 13, Nos. 150, 151, 152, 153, 1940-1941 (11-15, 25; 11-16; 12-16, 25-26). For. Abs. 3 (106).
- V, 1 **631.613—Downing, J. M.; Price, P. M.** Plowing for terrace maintenance in the South. *U.S.D.A. Soil Conserv. Serv.* 1940, pp. 11. E.S.R. 85 (258).
- 631.613—Hamilton, C. L.** Terrace maintenance. *Agric. Engng.* 21, 1940 (317-318, 321). Herb. Abs. 10 (356).
- 631.613—Skinner, A. F.** Contour furrowing. *Queensland Agric. J.* 54, 1940 (102-107).
- 631.613—Carnes, A.; Weld, W. A.** A study of old farmer-built terraces. *Agric. Engng.* 22, 1941 (361-362, 366). E.S.R. 87 (430).
- 631.613—Lehmann, E. W.; Hay, R. C.** Save the soil with contour farming and terracing. *Ill. Agric. Expt. Sta. Circ.* 513, 1941, pp. 44.
- 631.613—Rode, M. C. H.** How to protect earth embankments from being washed off by rain. *Farm. S. Africa* 16, 1941 (162).
- 631.613—Woodford, R. C.** Wet and dry terracing in Assam. *Indian Farm.* 2, 1941 (70-71).
- V, 3 **631.613—Copley, T. L.** Improved row system for terraced fields. *Agric. Engng.* 23, 1942 (95-96).
- 631.613—Cox, M. B.** Tests on vegetated waterways. *Okla. Agric. Expt. Sta. Tech. Bull.* 15, 1942, pp. 23. E.S.R. 88 (164).
- 631.613—Hay, R. C.** Soil erosion practices that meet wartime needs. *Agric. Engng.* 23, 1942 (353-355).
- 631.613—Johnson, E. G.** Plowing terraced land. *U.S.D.A. Leaflet* 214, 1942, pp. 6.
- V, 6 **631.613—Pittenger, P. M.** Plow method of terrace construction. *Soil Conservation* 8, 1942 (18-19).
- 631.613—Springer, D. E.** Terrace construction by plowing. *Agric. Engng.* 23, 1942 (284, 286).
- VII, 1 **631.613—Browne, G.** Prevention of soil erosion by means of broad base terracing. *Farm and Forest* 4, 1943 (29-33).
- 631.613—Copeland, J. T.** Unified terracing procedure. *Agric. Engng.* 24, 1943 (146, 148). E.S.R. 89 (488).
- 631.613—Goldstone, C. L.** The conservation of soil and water by means of contour furrows. *Tasm. J. Agric.* 14, 1943 (56-58).
- 631.613—Hamilton, C. L.** Terracing for soil and water conservation. *U.S.D.A. Farm Bull.* 1789, 1943, pp. 60. Supersedes *U.S.D.A. Farm Bull.* 1669.
- 631.613—Peterson, J. B.; Clapp, L. E.** Following the contour (how to strip-crop Iowa land). *Iowa Agric. Expt. Sta. Bull.* 153, 1943 (729-748). E.S.R. 89 (178).
- VI, 2 **631.613—Roberts, E.** Building a terrace with a one-way plow. *Soil Conservation* 8, 1943 (159-160).
- 631.613—Smith, D. D.** Bluegrass terrace outlet channels. *Agric. Engng.* 24, 1943 (333-336, 342).
- 631.613—Davenport, N.** More about contour banks. *J. Agric. W. Aust.* 21, 1944 (29-34).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.613—Illinois Agricultural Experiment Station.** How to farm on the contour. *Ill. Agric. Expt. Sta. Circ.* 575, 1944, pp. 5.
- 631.613—Shipman, R. C.; Cole, R. O.** Building terraces with the moldboard plow. *Agric. Engng.* 25, 1944 (15-16). VII, 2
- 631.613—Wooley, J. C.** A system for checking terraces. *Agric. Engng.* 25, 1944 (260-261). VII, 4
- 631.613 : 551.48—Knoblauch, H. C.; Haynes, J. L.** The effect of contour-cultivation on run-off. *Trans. Amer. Geophys. Un.* 21, 1940 (499-504). E.S.R. 85 (733). V, 2
- 631.613 : 551.48—Zingg, A. W.** Terrace grades on Shelby soil as they affect soil and water losses. *Agric. Engng.* 23, 1942 (159-160, 162). V, 5
- 631.613 : 631.3—Kerr, H. W.** The McNichol grader-leveller. *Cane Grow. Quart. Bull.* 8, 1940 (54-56); *Queensland Agric. J.* 54, 1940 (374-376).
- 631.613 : 631.3—Aylen, D.** A new ditcher. *Rhod. Agric. J.* 38, 1941 (8-14). IV, 3
- 631.613 : 631.3—Trenary, O. J.; Piercey, W. S.** A tractor level for laying out contour lines. *Agric. Engng.* 23, 1942 (356).
- 631.613 : 631.3—Samsel, L. G.** Building and maintaining terraces with ordinary farm machinery. *Agric. Engng.* 24, 1943 (337-338, 342).
- 631.613 : 631.432.2—Shubert, M. L.; Aikman, J. M.** Soil moisture content and general plant growth conditions of eroded soil as influenced by contour furrowing. *Proc. Iowa Acad. Sci.* 47, 1941 (77-82). *Herb. Abs.* 11 (279). V, 2
- 631.613 : 631.432.2—Knoblauch, H. C.; Lint, H. C.; Richards, S. J.** Soil moisture tension under various conservation practices, II. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (480-483). V, 5
- 631.613 : 631.432.3—Browning, G. M.; Milam, F. M.** The lateral movement of water in relation to pasture contour furrows. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (386-389). IV, 6
- 631.613 : 631.44—Mukerji, B. K.; Das, N. K.** Studies on Kumaun hill soils. II. Effect of terracing and cultivation on soil types at Chahattia. *Indian J. Agric. Sci.* 11, 1941 (941-953). V, 4
- 631.613 : 631.557—Zingg, A. W.; Whitt, D. M.** Distribution of corn yields on farm terraces on the Shelby soil. *Agric. Engng.* 23, 1942 (126, 128). V, 6
- 631.613 : 631.58—Schoenleber, L. H.** Terrace dimension changes and the movement of terrace ridges. *Agric. Engng.* 21, 1940 (477-478).
- 631.613 : 631.58—Schoenleber, L. H.** Terrace dimension changes and the movement of terrace ridges resulting from different farming practices. *SCS-TP* 40, 1941, pp. 21. E.S.R. 86 (157).
- 631.613 : 633.15—Knoblauch, H. C.** Contour tillage of corn under New Jersey conditions in relation to soil and water conservation, crop yields and various soil properties. *J. Amer. Soc. Agron.* 34, 1942 (263-269).
- 631.613 : 634—Du Sautoy, W.** Establishing fruit and timber trees on the contour. *Farm. Week. S. Africa* 67, 1944 (458-459).
- 631.613 (083.72)—Donnelly, M.** "A national terrace classification." *Agric. Engng.* 21, 1940 (406).

## BIBLIOGRAPHY OF SOIL SCIENCE

- 631.615 Bakhulin, M. D.** Reclaiming marshy soils for agricultural purposes. *Gebiet Inst. Fort. Problems of Development of Reclaimed Soils* 1939 :200-213. (U.S.S.R. 36 (6286).)
- 631.615- Bauman, A.** The breaking-up of new peat land. *Sevnska Vallar i Mossfjäll i Kantsliska*, 1, 1939 (159-163). Biol. Abs. 15 (1190).
- IV, 5 **631.615 Glass.** New methods of cultivating "powder moor." *Deut. Landesz.*, 9, 1940 (181). *Forschdienst*, 11, 1941.
- 631.615- McMillan, J. A.** Experiences in land reclamation, Cambridgeshire. *J. Roy. Agr. Soc. England* 102, 1941 (104-109).
- 631.615 : 634.973.662 Albert, R.** Alder as a soil improver in the afforestation of waste land and as an admixture and nurse species for pine in the rehabilitation of devastated forest soils. *Mit. H. Geringe Nat. Dendr. & Forstsch.*, 1, 1942 (126-132). For. Abs. 4, 87; *Forstarchiv* 18, 101. [6.]
- VII, 2 **631.616 Glanville, E. B.** Reclamation of tidal flats. *N.Z. J. Agr.*, 67, 1943 (413-421).
- 631.616 Walker, C.** Pasture establishment on marine silts. *N.Z. J. Agr.*, 66, 1943 (224-225).
- IV, 2 **631.617 Maliugin, E. A.** The Aral desert and an attempt to reclaim it for agriculture. *Trudy Inst. Agr. Sci. Mat. Conn. Desert.* 1938, 1939 (102-116). Herb. Abs. 10, 289. [Re.]
- 631.617 Sablukov, L. N.** Reclamation of semi-deserts in Kalmyk, A.S.S.R. *Trudy Inst. Agr. Sci. Mat. Conn. Desert.* 1938, 1939 (148-149). Herb. Abs. 10, 289. [Re.]
- 631.617 Teleshev, K. G.** Agricultural reclamation of the lower Dnieper sandlands. *Trudy Inst. Agr. Sci. Mat. Conn. Desert.* 1938, 1939 (227-232). Herb. Abs. 10, 279. [Re.]
- 631.617 Cassady, J. T.; Glendening, G. E.** Revegetating semi-desert range lands in the Southwest. *Calif. Conn. Conf. Forests, Ed.* 8, 1940, pp. 22. For. Abs. 2, 188.
- VII, 2 **631.617 Kuranov, V. J.** Work of the Aral Experiment Station in reclamation of desert lands. *Sov. Trudy*, No. 5, 1940 (71-75). Herb. Abs. 13, 198.

## 631.62 DRAINAGE

- 631.62 Krekow, E. A.** Maintenance of open drainage ditches. *Agric. Engng.*, 22, 1941 (7-8).
- 631.62 Jones, L. A.** Drainage as a conservation practice. *Agric. Engng.*, 23, 1942 (97-98).
- 631.62-Kendall, R. G.** Some new ideas on practical field draining. *Farm Impl. Mach. Rev.*, 69, 1943 (553-554).
- 631.62 Nicholson, H. H.** Modern field drainage. *J. Roy. Agric. Soc. England* 104, 1943 (118-135).
- 631.62 Kendall, R. G.** Practical field draining. II. Water, ponds and drain pipes. *Farm Impl. Mach. Rev.*, 69, 1944 (725-726).
- IV, 2 **631.62 : 551.577 Sahni, P. N.** The relation of drainage to rainfall and other meteorological factors. *J. Agric. Sci.*, 31, 1941 (110-115).
- 631.62 : 626.862.6 Fletcher, J. C.** When and how to mole drain. *Farm. Stk.-Breed.*, 54, 1940 (2347).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.62 : 626.862.6 Nicholson, H. H. The importance of mole-draining in present circumstances. *J. Min. Agric.* 46, 1940 (671-676).
- 631.62 : 626.862.6 Yangol, A. M. Mole drainage in peat. *Dokl. Akad. S.-Kh. Nauk* No. 12, 1940 (26-32). [R.]
- 631.62 : 626.862.6 Nicholson, H. H. Causes of failure of mole drainage schemes. *Sch. Agric. Cambridge* 1941, pp. 2. (Mimeo.)
- 631.62 : 626.862.6 Nicholson, H. H. Procedure in mole draining. *Sch. Agric. Cambridge* 1941, pp. 3. (Mimeo.)
- 631.62 : 626.862.6 Nicholson, H. H. Mole draining. *Woes. Agric. Chion.* 9, 1941 (145, 147, 149, 151, 153).
- 631.62 : 626.862.6 Childs, E. C. The mechanics of mole-draining. *Emp. J. Expt. Agric.* 10, 1942 (169-181). VI, 1
- 631.62 : 626.862.6 Barr, H. T.; Turnbull, J. A new implement for mole drainage. *Agric. Engng.* 24, 1943 (417-418). VII, 2
- 631.62 : 626.862.6 Childs, E. C. Studies in mole-draining. Interim report on an experimental drainage field. *J. Agric. Sci.* 33, 1943 (136-146).
- 631.62 : 626.862.6 Farm Implement and Machinery Review. A new principle of mole draining. *Farm Impl. Mach. Rev.* 69, 1943 (470-471). VI, 4
- 631.62 : 626.862.6 Barker, A. Mole drainage. *J. Min. Agric.* 51, 1944 (8-11).
- 631.62 : 626.862.6 Kendall, R. G. The principles of mole draining. *Farm Impl. Mach. Rev.* 70, 1944 (387-388). VII, 4
- 631.62 : 626.862.6 : 631.4 Hudson, A. W.; Fife, C. V. Mole-drainage investigations in New Zealand. (1) The profiles of some mole drainage soils and their relation to the depths of mole drains. *N. Z. J. Sci. Tech.* 22, 1940 (197A-208A). IV, 5
- 631.62 : 626.862.6 : 631.4 Nicholson, H. H. The types of soils suitable for mole draining. *Sch. Agric. Cambridge* 1940, pp. 2. (Mimeo.)
- 631.62 : 626.862.6 : 633.2.03 Smelov, S. P.; Yuventskaia, S. I. The effect of mole drainage on the vegetative regeneration and yield of meadow herbage. *Vest. S.-Kh. Nauk. Kormolch.* No. 4, 1940 (39-45). *Herb. Abs.* 13 (209). VII, 2
- 631.62 : 631.416 Roe, H. B. Some soil changes resulting from drainage. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (402-409).
- 631.62 : 631.432.21 Penman, H. L.; Schofield, R. K. Drainage and evaporation from fallow soil at Rothamsted. *J. Agric. Sci.* 31, 1941 (74-109). IV, 2
- 631.62 : 631.432.3 Kano, T. Method of determining the spacing and the depth of underdrains, and the maximum outflow from them. *Japan. J. Astron. Geophys.* 17, 1940 (295-330). [E.] IV, 4
- 631.62 : 631.432.3 Childs, E. C.; Nicholson, H. H. Field drainage. The provision of main drains and outfalls. *Sch. Agric. Cambridge* 1941, pp. 2. (Mimeo.)
- 631.62 : 631.432.3 Kirkham, D. Pressure and streamline distribution in waterlogged land overlying an impervious layer. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (64-68).
- 631.62 : 631.432.3 Harding, S. W.; Wood, J. K. Model tests of flow into drains. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (117-119).



## BIBLIOGRAPHY OF SOIL SCIENCE

- 631.62 : 631.432.3**—**Tisdall, A. L.** Drainage investigations in the horticultural soils of the Murray Valley. *Aust. Coun. Sci. Indust. Res. Pamph.* 113, 1942, pp. 23.
- IV, 2 **631.62 : 631.435**—**Ryzhov, S. N.** Effect of draining interlayers on the permeability and water-retaining capacity of soils. *Pedology* No. 7, 1940 (22-38). [R.g.]
- IV, 2 **631.62 : 631.435.4**—**Geltman, B. G.** Regulating the water regime of heavy soils by amelioration of the subarable layer. *Pedology* No. 7, 1940 (39-46). [R.g.]
- 631.62 : 631.471**—**Nicholson, H. H.** A note on the use of maps in field drainage work. *Sch. Agric. Cambridge* 1940, pp. 2. (Mimeo.)
- VI, 4 **631.62 : 631.58**—**Morgan, M. F.; Jacobson, H. G. M.; LeCompte, S. B., Jr.** Drainage water losses from a sandy soil as affected by cropping and cover crops, Windsor lysimeter series C. *Conn. Agric. Expt. Sta. Bull.* 466, 1942 (727-759). E.S.R. 89 (177).
- V, 5 **631.62 : 636.084.22**—**Matson, H.** Maintaining open drainage ditches by grazing. *Agric. Engng.* 23, 1942 (169).
- VI, 4 **631.621**—**Tisdall, A. L.** A note on the use of drainage water. *Aust. J. Coun. Sci. Indust. Res.* 14, 1941 (260-263). Biol. Abs. 17 (1535).
- IV, 1 **631.622**—**Richards, L. A.; Neal, O. R.; Russell, M. B.** Observations on moisture conditions in lysimeters. II. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (55-59).
- 631.622**—**Maschhaupt, J. G.** Lysimeter investigations in agricultural stations in Germany, Groningen and other places. II. The chemical composition of drainage water. *Versl. Rijkslandb.-Proefsta. Groningen* 47, 1941 (165-528). C.A. 37 (3868).
- IV, 6 **631.622**—**Mulwani, B. T.** Soil solution studies in irrigation practices. *Curr. Sci.* 10, 1941 (183-184).
- V, 6 **631.622**—**Mulwani, B. T.** Soil solution studies in irrigation practices. *J. Univ. Bombay* 10, 1942 (39-98).
- VII, 3 **631.622**—**Kilmer, V. J.; Hays, O. E.; Muckenhirn, R. J.** Plant nutrient and water losses from Fayette silt loam as measured by monolith lysimeters. *J. Amer. Soc. Agron.* 36, 1944 (249-263).
- V, 4 **631.622 : 631.411.4**—**Neller, J. R.; Forsee, W. T., Jr.** A lysimeter for organic soils. *J. Amer. Soc. Agron.* 34, 1942 (345-352).

## 631.67 IRRIGATION

- 631.67**—**Staebner, F. E.** Supplemental irrigation. *U.S.D.A. Farm. Bull.* 1846, 1940, pp. 73.
- VII, 4 **631.67**—**Bosman, F. H.** Maintaining soil fertility under irrigation. *Farm. S. Africa* 18, 1943 (665-667).
- VII, 1 **631.67**—**Hall, C. K.** Successful flood-water irrigation. The role of the saaidam. *Farm. Week. S. Africa* 96, 1943 (122-123).
- 631.67**—**Lewis, M. R.** Practical irrigation. *U.S.D.A. Farm. Bull.* 1922, 1943, pp. 69.
- VI, 1 **631.67 : 551.577**—**Swezey, J. A.** Rainfall evaluation as an aid to irrigation interval control. *Hawaii. Plant. Rec.* 46, 1942 (75-100).
- IV, 2 **631.67 : 631.415.3**—**Scofield, C. S.** Salt balance in irrigated areas. *J. Agric. Res.* 61, 1940 (17-39).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.67 : 631.416**—Antipov-Karataev, I. N. Changes produced by irrigation in the chemical properties of the principal soils of the trans-Volga region. *Probl. Socet. Pochvoved.* 11, 1940 (117-158). [R.] VII, 3
- 631.67 : 631.416**—Powers, W. L. Soil changes due to irrigation and related treatments. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940, (410-414). IV, 1
- 631.67 : 631.416**—Botkin, C. W.; Smith, E. C. Effect of irrigation waters and cropping on the nutrients and exchangeable bases of desert soils. *N. Mex. Agric. Expt. Sta. Bull.* 292, 1942, pp. 28. E.S.R. 87 (635). VI, 2
- 631.67 : 631.417**—Gracie, D. S. Organic content of soils of the Middle East. *Proc. Conf. Middle East Agric. Devt. Cairo*, 1944 (107-119). VII, 3
- 631.67 : 631.432.2**—Powers, W. L.; Bertramson, B. R. Irrigation efficiency studies. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (415-419). IV, 1
- 631.67 : 631.432.2**—Givan, C. V. Irrigation water supply system capacities. *Agric. Engng.* 23, 1942 (281-283). VI, 1
- 631.67 : 631.432.2**—Israelsen, O. W.; Criddle, W. D.; Fuhrman, D. K., et al. Water-application efficiencies in irrigation. *Utah Agric. Expt. Sta. Bull.* 311, 1944, pp. 55.
- 631.67 : 631.434**—Ryzhov, S. N. Reasons for the formation of a crust on irrigated soils of central Asia and methods for its prevention. *Soil Fert. Problems Cotton Res. Inst. Tashkent* 1939 (9-33). C.A. 36 (5300). VI, 2
- 631.67 : 631.62**—Kahawita, R. Water-logging of irrigated lands and remedial measures. *Trop. Agricst.* 95, 1940 (278-287). IV, 3
- 631.67 : 631.62**—Lyon, A. V.; Tisdall, A. L. Production of dried grapes in Murray Valley irrigation settlements. 2. Irrigation, drainage, and reclamation. *Aust. Coun. Sci. Indust. Res. Bull.* 149, 1942, pp. 35. VI, 1
- 631.67 : 631.81**—Alpat'ev, A. M. Irrigation rate and effectiveness of fertilizers in sandy deserts of the Aral environs. *Lenin Acad. Agric. Mat. Comm. Deserts* (1938), 1939 (36-66). Herb. Abs. 10 (368). [R.e.]
- 631.671**—Kelley, W. P. Permissible composition and concentration of irrigation water. *Proc. Amer. Soc. Civil Engrs.* 66, 1940 (607-613). C.A. 34 (5986). IV, 1
- 631.671**—Medos, L. The qualifications of irrigation waters. *Mezög. Kutat.* 13, 1940 (121-131). C.A. 34 (7053). IV, 2
- 631.671**—Hill, R. A. Salts in irrigation water. *Proc. Amer. Soc. Civil Engrs.* 67, 1941 (975-990). B.C.A.B. III, 1941 (273).
- 631.671**—Magistad, O. C. The use of softened Colorado River water for home gardens. *J. Amer. Water Works Assoc.* 33, 1941 (883-893).
- 631.671 : 546.27**—Eaton, F. M.; McCallum, R. D.; Mayhugh, M. S. Quality of irrigation waters of the Hollister area of California with special reference to boron content and its effect on apricots and prunes. *U.S.D.A. Tech. Bull.* 746, 1941, pp. 59.
- 631.671 : 551.3.051**—Gardner, J. L.; Hubbell, D. S. A study of the effects of silty irrigation water from an intermittent stream on crops and soils in controlled plots. *J. Amer. Soc. Agron.* 34, 1942 (1080-1101). VI, 2

# BIBLIOGRAPHY OF SOIL SCIENCE

- VII, 4      **631.671 : 631.415.1** Cassidy, N. G. Exchangeable sodium and the physical properties of soils. *Queensland J. Agric. Sci.* 1, 1944 (140-156).

**631.671 : 631.432** - Code, W. E. Use of ground water for irrigation in the South Platte Valley of Colorado. *Colo. Agric. Expt. Sta. Bull.* 483, 1943, pp. 44.

## 631.81 FERTILIZERS

**631.81** -Kunsman, C. H. Sources and available supplies of commercial fertilizers. *U.S.D.A. Misc. Pub.* 400, 1940, pp. 20. E.S.R. 85 (22).

**631.81** Maiwald, K. What are commercial fertilizers and what is their function in agriculture? *ForschInust.* 12, 1941 (553-576). [G.]

**631.81** Ströbele, F.; Pressler, H. Results of a nine-year fertilizer experiment. *ForschInust.* 12, 1941 (280-298). [G.]

**631.81** Savory, J. B. G. There is nothing artificial about "artificial" *Fert. Fertil. J.* 29, 1943 (195, 197-198).

**631.81** Spuy, M. J. v. d.; Eksteen, L. L. Fertilizers for the maintenance of soil fertility. *Farm. S. Africa* 18, 1943 (669-672, 681, 704).

**631.81 : 33** Sukhatme, P. V. Economics of manuring. *Indian J. Agric. Sci.* 11, 1941 (325-337). Hort. Abs. 12 (106).

**631.81 : 355.01** Crowther, E. M. Manuring under a fertilizer rationing scheme. *J. Roy. Agric. Soc. England* 103, 1942 (150-160).

**631.81 : 355.01** Crowther, E. M. Fertilizer policy on the farm. *J. Mod. Agric.* 49, 1942 (68-79). B.C.A.B. III, 1943 (70).

**631.81 : 539.215** Adams, J. R.; Ross, W. H. Relative caking tendency of fertilizers. *Indust. Engng. Chem.* 33, 1941 (121-127). *Amer. Fert.* 95, No. 2, 1941 (5-8, 22, 24).

- IV, 5      **631.81 : 539.215** Skinner, J. J.; McKaig, N., Jr.; Hardesty, J. O., et al. Effectiveness on cotton soils of granulated mixed fertilizers of different particle size. *J. Amer. Soc. Agron.* 33, 1941 (314-324).

**631.81 : 539.215** Wilkins, S. D. Fertilizer pellets and cubes. *Amer. Fert.* 94, No. 3, 1941 (5-7, 22, 24).

**631.81 : 539.215** Hopkins, D. P.; Parrish, P., et al. Granulation and the fertilizer industry. *Fert. Fertil. J.* 28, 1942 (439, 441, 443, 445); (461); 29, 1943 (3, 5, 7); (27, 29, 31-33); (47, 49, 51-53).

- V, 4      **631.81 : 544.6** - Melvin, E. H.; O'Connor, R. T. Spectrochemical analysis of trace elements in fertilizers. Boron, manganese and copper. *Indust. Engng. Chem. (Anal. Ed.)* 13, 1941 (520-524). Hort. Abs. 12 (8).

V, 3      **631.81 : 544.6** -O'Connor, R. T. Spectrochemical analysis of trace elements in fertilizers. Zinc. *Indust. Engng. Chem. (Anal. Ed.)* 13, 1941 (597-600). B.C.A.B. III, 1942 (5).

- IV, 5      **631.81 : 545** - Ross, W. H.; Rader, L. F., Jr.; Hardesty, J. O. Preparation of fertilizer samples for analysis. *J. Assoc. Off. Agric. Chem.* 24, 1941 (253-263).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.81 : 545 Whittaker, C. W.; Ross, W. H. The problem of moisture determination in fertilizers. *J. Assoc. Off. Agric. Chem.* 25, 1942 (132-142).
- 631.81 : 546.47 Walkley, A. The zinc content of some Australian fertilizers. *Aust. J. Co-ope. Sci. Indust. Res.* 13, 1940 (255-260).
- 631.81 : 577.16 Sapun, M. P. Effect of fertilizers and liming on the vitamin-C content in vegetables. *Dokl. Akad. S.-Kh. Nauk* No. 17, 1940 (28-32). [R.]
- 631.81 : 577.16 Schuphan, W. Should farmyard manure be used alone or in combination with artificials for vegetables? *Forsch.-Dienst.* 9, 1940 (323-332). [G.]
- 631.81 : 577.16 Schuphan, W. Influence of locality and fertilizer on the provitamin-A content of vegetables. *Biochem. Ztschr.* 305, 1940 (323-331). C.A. 35 (563).
- 631.81 : 577.16 Schuphan, W. A critical discussion on the question of farmyard manure applied to vegetables from the point of view of agricultural chemistry and medicine. A. Manual trials on tomatoes and carrots in respect of their biological value. *Ernährung* 5, No. 2, 1940 (29-37). Biol. Abs. 17 (250).
- 631.81 : 577.16 Virtanen, A. I. Increasing the vitamin content of agricultural products. *Acta Chem. Fenn.* 14A, 1941 (6-10). C.A. 35 (4899). [Fic.]
- 631.81 : 577.16 Schmitt, L. Present-day fertilizers and their effect on the quality of crop plants. *Ernähr. F.* 38, 1942 (1-6). [G.]
- 631.81 : 577.16 Cross, F. B. Effect of certain cultural practices (soil fertility and texture) on the ascorbic acid content of some horticultural plants. *Ann. Missouri Bot.* 444, 1943, pp. 128. C.A. 37 (2116).
- 631.81 : 581.192 Wölfer, H. In what way is yield (particularly of crude protein and of digestible protein) influenced by differential manuring with  $N$ ,  $P_2O_5$  and  $K_2O$  and how is the content of nitrate nitrogen affected by increasing doses of  $N$ ? *Bodenk. Pflanzk.* 23, 1941 (226-259). [G.]
- 631.81 : 581.192 Snider, H. J. The chemical composition of farm crops as affected by soil type and treatment. *Trans. Ill. St. Acad. Sci.* 35, No. 2, 1942 (36-38). C.A. 37 (2503).
- 631.81 : 581.192 Pfitzer, G.; Roth, H. The phosphatide content of plants as a function of their mineral nutrition. *Die Chemie* 56, 1943 (289-293). C.A. 37 (5110).
- 631.81 : 581.192 Smith, G. E.; Albrecht, W. A. Feed efficiency in terms of biological assays of soil treatments. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (322-330). Herb. Abs. 13 (327).
- 631.81 : 631.418 Rader, L. F., Jr.; White, L. M.; Whittaker, C. W. The salt index—a measure of the effect of fertilizers on the concentration of the soil solution. *Soil Sci.* 55, 1943 (201-218).
- 631.81 : 631.421 Adams, J. E.; Jordan, H. V.; Jenkins, P. M. The response to fertilizers of soils of the Blackland prairie section of Texas as determined by the triangle system. *J. Amer. Soc. Agron.* 32, 1940 (657-663).

# BIBLIOGRAPHY OF SOIL SCIENCE

- IV, 2    **631.81 : 631.421—Willcox, O. W.** The fertilization of sugar cane. Part I. A simple graphical method of evaluating tests with fertilizers. *Facts ab. Sug.* 35, No. 12, 1940 (33-37).
- IV, 6    **631.81 : 631.421—Fippin, E. O.** The objectives and methods of field plot fertilizer tests and a proposed improvement of methods. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (274-280).
- IV, 3    **631.81 : 631.432.3—Nelson, C. E.; Wheetting, L. C.** Fertilizer placement under irrigation in Washington. *J. Amer. Soc. Agron.* 33, 1941 (105-114).
- IV, 6    **631.81 : 631.432.3—Schaller, F. W.** The downward movement of lime and superphosphate in relation to permanent pasture fertilization. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (162-166).
- IV, 1    **631.81 : 631.811.9—Millar, C. E.; Gillam, W. S.** Manganese, copper, and magnesium contents of some commercial fertilizers. *J. Amer. Soc. Agron.* 32, 1940 (722-725).

## 631.811 PLANT NUTRITION. NUTRIENT REQUIREMENTS

- IV, 6    **631.811—Schuffelen, A. G.** Does plant growth depend on the ratio of different ions in the soil? *Landbouwk. Tijdschr.* 52, 1940 (845-848). C.A. 37 (6076). Biol. Abs. 15 (1420).
- IV, 6    **631.811—Turchin, F. V.** The effect of a basal KP fertilizer on the utilization of ammonium and nitrate nitrogen by plants. *Khim. Sotsial. Zemled.* No. 9, 1940 (13-20). [R.]
- 631.811—Viswa Nath, B.** A century of Liebig's theory of mineral nutrition of plants and of soil fertility. *Curr. Sci.* 9, 1940 (528-532).
- 631.811—Hoagland, D. R.; Arnon, D. I.** Physiological aspects of availability of nutrients for plant growth. *Soil Sci.* 51, 1941 (431-444).
- 631.811—Jacob, A.** Production per unit of applied fertilizer elements. *Chem.-Ztg.* 65, 1941 (455-456). *Ernähr. Pfl.* 38, 1942 (57-58). [G.]
- 631.811—Veen, R. van der.** Manuring with regard to soil types. *Bergcultures* 15, 1941 (778-781). [Du.]
- 631.811—Dickman, S. R.** Nutrient availability. An analysis. *Better Crops with Plant Food* 26, 1942, No. 3 (21-22, 33-36); No. 4 (20-22, 39-40).
- 631.811—Nicol, H.** What the plant does with its materials. *Nature* 150, 1942 (13-15).
- VII, 3    **631.811 : 149.918.6—Schmitt, L.; Hasper, E.** Growth-substances and biodynamic agricultural practices. *Bodenk. Pfl.-Ernähr.* 30, 1942 (65-95). [G.]
- VII, 2    **631.811 : 551.51—Ingham, G.** The fertility of the air. *S. Afric. J. Sci.* 39, 1943 (35-43).
- V, 2    **631.811 : 551.57—Demidenko, T. T.; Barinova, R. A.** Influence of air humidity on uptake of nutrient elements by spring wheat. *C.R. Acad. Sci. (U.S.S.R.)* 26, 1940 (183-186). *Herb. Abs.* 11 (251).
- IV, 1    **631.811 : 551.58—Clements, H. F.** Integration of climatic and physiologic factors with reference to the production of sugar cane. *Hawaii. Plant. Rec.* 44, 1940 (201-231).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.811 : 551.58—Greaves, J. E.; Bracken, A. F.** Influence of variety, season and cultural treatments on the minerals removed from the soil by wheats. *Proc. Utah Acad. Sci.* 17, 1940 (53-56). C.A. 35 (2657). IV, 4
- 631.811 : 581.192—Schroeder, R. A.; Albrecht, W. A.** Plant nutrition and the hydrogen ion.—III. Soil calcium and the oxalate content of spinach. *Bull. Torrey Bot. Cl.* 69, 1942 (561-568). E.S.R. 88 (604). VII, 2
- 631.811 : 631.414.2—Chizhov, B. A.** Uptake of nutrients from dry soil. *Bull. Acad. Sci. (U.S.S.R.) (Cl. Sci. Math.) Sér. Biol.* 1940 (555-563). Herb. Abs. 11 (169). V, 1
- 631.811 : 631.414.2—Graham, E. R.** Calcium transfer from mineral to plant through colloidal clay. *Soil Sci.* 51, 1941 (65-71). IV, 3
- 631.811 : 631.415.1—Albrecht, W. A.; Schroeder, R. A.** Plant nutrition and the hydrogen ion: I. Plant nutrients used most effectively in the presence of a significant concentration of hydrogen ions. *Soil Sci.* 53, 1942 (313-327).
- 631.811 : 631.432.2—Chizhov, B. A.** Utilization of the nitrogen and phosphorus of fertilizers by plants at different soil moistures. *Sotsial. Zern. Khoz.* No. 1, 1941 (95-125). [R.] V, 1
- 631.811 : 631.53—Reimers, F. E.** Influence of soil nutrition on vernalization of beetroots and turnips. *Dokl. Akad. S.-Kh. Nauk* No. 2-3, 1939 (27-30). *Pedology* No. 5, 1940 (117). IV, 2
- 631.811 : 631.81—Eperjessy, G.** Cuticular excretion under conditions of high manuring. *Mecóg. Kutat.* 14, 1941 (37-47). [H.g.] V, 1
- 631.811.1—Burström, H.** The utilization of nitrate nitrogen by plants. *Kgl. Lantbr.Akad. Tidskr.* 79, 1940 (357-372). [Sw.e.]
- 631.811.1—Weigert, J.; Gleissner, F.** The capacity for nitrogen utilization by various agricultural plants. *Prakt. Bl. Pflbau.* 17, 1940 (197-208, 243-262). C.A. 34 (7514). IV, 2
- 631.811.1—Arenz, B.** The uptake and metabolism of  $\text{NO}_3\text{-N}$  and  $\text{NH}_3\text{-N}$  by graminaceous seedlings. *Bodenk. Pflernähr.* 27, 1942 (330-352). [G.] V, 5
- 631.811.1—Arenz, B.** The uptake and metabolism of  $\text{NO}_3\text{-N}$  and  $\text{NH}_3\text{-N}$  by leguminous seedlings. *Bodenk. Pflernähr.* 27, 1942 (353-367). [G.] V, 5
- 631.811.1—Kappen, H.; Wienhaus, W.** The uptake of nitrogen from ammonium salts and nitrates by seedlings. Part I. *Bodenk. Pflernähr.* 27, 1942 (311-330). [G.] V, 5
- 631.811.1—Norman, A. G.; Werkman, C. H.** The use of the nitrogen isotope  $\text{N}^{15}$  in determining nitrogen recovery from plant materials decomposing in soil. *J. Amer. Soc. Agron.* 35, 1943 (1023-1025). VII, 2
- 631.811.1—Hopkins, D. P.** A nitrogen balance sheet. *Feil. Fed.* J. 30, 1944 (359, 361, 363, 365-366).
- 631.811.1 : 631.415.1—Burström, H.** Studies on the relation between H-ion concentration and nitrate utilization by wheat plants. *LantbrHögsk. Ann.* 8, 1940 (131-182). [E.sw.] VI, 2
- 631.811.1 : 631.811.3—Alten, F.; Rauterberg, E.; Loofmann, H.** The influence of potash on the nitrogen economy of plants. *Bodenk. Pflernähr.* 19, 1940 (22-55). C.A. 35 (3022). [G.] IV, 5

# BIBLIOGRAPHY OF SOIL SCIENCE

- IV, 6    **631.811.1 : 631.811.3 Arenz, B.** The role of potassium in the nutrition of plants with ammonium nitrogen. *Bodenk. PflErnahr.* 23, 1941 (129-152). [G.]
- VI, 1    **631.811.1 : 631.811.3 Rautenberg, E. ; Knippenberg, E.** The influence of potash on the nitrogen economy of cocksfoot, rye grass and red clover. *Bodenk. PflErnahr.* 28, 1942 (1-30). [G.]
- 631.811.2.3 Rautenberg, E. ; Schulte, E.** Nutrient uptake and plant development after various potash treatments at two levels of phosphoric acid. *Ernahr. Pfl.* 38, 1942 (25-28, 37-39). [G.]
- V, 1    **631.811.2 Ballard, S. S. ; Dean, L. A.** Soil studies with radioactive phosphorus: significance of biological measurements of the retention of applied phosphorus by soils. *Soil Sci.* 52, 1941 (173-183).
- IV, 6    **631.811.2 : 631.811.1 Gericke, S.** The fertilizing effect of phosphoric acid with different nitrogen nutrition of plants. *Bodenk. PflErnahr.* 20, 1940 (177-199). *ForschDienst* 11 (76). [G.]
- VII, 3    **631.811.2 : 631.811.1 Gericke, S.** The manural effect of phosphoric acid under various conditions of nitrogen nutrition of plants. Part 2. The influence of simultaneous fertilizing with lime and magnesia. *Bodenk. PflErnahr.* 32, 1943 (223-243). [G.]
- 631.811.3 Drake, M. ; Scarseth, G. D.** Relative abilities of different plants to absorb potassium and the effects of different levels of potassium on the absorption of calcium and magnesium. *Proc. Soil Sci. Soc. Amer.* (1939) 4 (1940) (201-204).
- VII, 2    **631.811.3 Giesecke, F. ; Mantel, E.** The potash question as a timely research problem for increasing the output of German agriculture. *ForschDienst, Sonderh.* 16 (1942) (177-180). C.A. 37 (4515).
- VI, 3    **631.811.3 Bayer, L. D.** Practical applications of potassium interrelationships in soils and plants. *Soil Sci.* 55, 1943 (121-126).
- 631.811.3 Nightingale, G. T.** Physiological-chemical functions of potassium in crop growth. *Soil Sci.* 55, 1943 (63-78).
- 631.811.3 Pierre, W. H. ; Bower, C. A.** Potassium absorption by plants as affected by cationic relationships. *Soil Sci.* 55, 1943 (23-36).
- V, 1    **631.811.3 : 577.15.04 Laude, H. M.** Combined effects of potassium supply and growth substances on plant development. *Bot. Gaz.* 103, 1941 (155-167).
- IV, 4    **631.811.3 : 631.44 Stollarova, A. A.** The utilization by plants of the exchangeable and "non-exchangeable" forms of potassium in soils. *Khim. Sotsial. Zemled.* No. 2, 1940 (50-56). *Pedology* No. 10, 1940 (114). [R.]
- VI, 4    **631.811.3 : 631.811.2 Opitz, K.** The interaction of potash and phosphoric acid in soil and plant. *Bodenk. PflErnahr.* 30, 1943 (345-360). [G.]
- V, 6    **631.811.3 : 631.811.4 Stanford, G. ; Kelly, J. B. ; Pierre, W. H.** Cation balance in corn grown on high-lime soils in relation to potassium deficiency. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (335-341).
- 631.811.3 : 631.811.4 Gebhard, H.** The influence of potash and lime on yield and potash uptake of plants. *Bodenk. PflErnahr.* 31, 1943 (263-281). [G.]

# FERTILIZERS AND GENERAL AGRONOMY

- 631.811.3:631.811.4** Bower, C. A.; Pierre, W. H. VII, 4  
Potassium response of various crops on a high-lime soil in relation to their contents of potassium, calcium, magnesium, and sodium. *J. Amer. Soc. Agron.* 36, 1944 (608-614).
- 631.811.4**—Albrecht, W. A. Calcium-bearing versus neutral fertilizers. *Comm. Fert. Yrbk.* 1941 (23-30, 48). *Comm. Fert.* 63, No. 3, 1941 (8-15, 24).
- 631.811.4** Albrecht, W. A. Plants and the exchangeable calcium of the soil. *Amer. J. Bot.* 28, 1941 (394-402). *Hort. Abs.* 12 (7). V, 4
- 631.811.4:546.27** Schropp, W.; Arenz, B. Calcium-boron antagonism in some legumes. *Bodenk. Pflernähr.* 17, 1940 (55-67). *C.A.* 35 (261). [G.]
- 631.811.4:546.27** Drake, M.; Sieling, D. H.; Scarseth, G. D. Calcium-boron ratio as an important factor in controlling the boron starvation of plants. *J. Amer. Soc. Agron.* 33, 1941 (454-462). IV, 5
- 631.811.4:546.27** Lorenz, O. A. Relation between borax and calcium in growth of garden beet. *Proc. Amer. Soc. Hort. Sci.* (1941) 39, 1941 (368). *B.C.A.B.* III, 1943 (468). VI, 4
- 631.811.4:546.27** Marsh, R. P.; Shive, J. W. Boron as a factor in the calcium metabolism of the corn plant. *Soil Sci.* 51, 1941 (141-151). IV, 3
- 631.811.4:546.27** Marsh, R. P. Comparative study of the calcium-boron metabolism of representative dicots and monocots. *Soil Sci.* 53, 1942 (75-78). V, 3
- 631.811.4:546.27** Jones, H. E.; Scarseth, G. D. The calcium-boron balance in plants as related to boron needs. *Soil Sci.* 57, 1944 (15-24). VII, 3
- 631.811.4:546.27** Reeve, E.; Shive, J. W. Potassium-boron and calcium-boron relationships in plant nutrition. *Soil Sci.* 57, 1944 (1-14). VII, 3
- 631.811.4:546.711**—Albrecht, W. A.; Smith, N. C. Calcium and phosphorus as they influence manganese in forage crops. *Bull. Torrey Bot. Cl.* 68, 1941 (372-380). *Bodenk. Pflernähr.* 21 22, 1940 (757-767). *C.A.* 37 (2117). IV, 6
- 631.811.4:581.144.2** Tucker, C. M.; Burkholder, P. R. Calcium deficiency as a factor in abnormal rooting of philodendron cuttings. *Phytopath.* 31, 1941 (844-848).
- 631.811.4:631.415.1** Moser, F. Calcium nutrition at respective pH levels. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (339-344). *Biol. Abs.* 17 (1958). VII, 1
- 631.811.4:631.547.1** Albrecht, W. A. Calcium as a factor in seed germination. *J. Amer. Soc. Agron.* 33, 1941 (153-155). IV, 3
- 631.811.4:631.811.2** Albrecht, W. A.; Smith, N. C. Calcium in relation to phosphorus utilization by some legumes and nonlegumes. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (260-265). IV, 1
- 631.811.5**—Lehr, J. J. The importance of sodium for plant nutrition: 1. *Soil Sci.* 52, 1941 (237-244).
- 631.811.5:631.811.3**—Harmer, P. M. Salt with potash for some crops. *Better Crops with Plant Food* 27, No. 6, 1943 (6-10, 48-50).
- 631.811.6**—Engels, O. Magnesia in agriculture. *Chem.-Ztg.* 64, 1940 (101-103). [G.] VI, 4



# BIBLIOGRAPHY OF SOIL SCIENCE

- IV, 4    **631.811.6—Vries, O. de.** Magnesium as a plant nutrient. *Deut. Landw. Pr.* 67, 1940 (197, 207, 217). *Mezőg. Kutat.* 13 (294). [G.]
- V, 2    **631.811.6—Michael, G.** The uptake and distribution of magnesium and its role in higher non-woody plants. *Bodenk. PflErnähr.* 25, 1941 (65-120). [G.]
- 631.811.6—Sommer, A. L.; Wear, J. I.; Baxter, A.** The response to magnesium of six different crops on sixteen Alabama soils. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (205-212).
- V, 5    **631.811.6 : 631.811.9—Sommer, A. L.; Baxter, A.** Differences in growth limitation of certain plants by magnesium and minor element deficiencies. *Plant Physiol.* 17, 1942 (109-115). *Biol. Abs.* 16 (1241).
- V, 1    **631.811.6 : 631.853 Gericke, S.** Manurial trials with various magnesium compounds. *Bodenk. PflErnähr.* 20, 1940 (330-352). *ForschDienst.* 11 (93). [G.]
- 631.811.7—Alway, F. J.** A nutrient element slighted in agricultural research. *J. Amer. Soc. Agron.* 32, 1940 (913-921).
- VII, 2    **631.811.7—Prokoshchev, V. N.; Ustluzhanina, E. M.** Gypsum and sulphur as fertilizers on light soils. *Khim. Sotsial. Zemled.* 10, No. 2, 1941 (30-34). *C.A.* 37 (495).
- VII, 2    **631.811.7 : 546.23—Johnson, L. H.; Lindstrom, H. V.; Gortner, R. A.** Sulfur in plants. I. The effect of applications of gypsum and sodium selenate on sulfur distribution and manganese, iron, and copper contents of alfalfa. *Arch. Biochem.* 2, 1943 (435-441).
- IV, 5    **631.811.7 : 546.284 Okawa, K.; Tanaka, R.** The relation between silicic acid and sulphuric acid in plants. *J. Sci. Soil Japan* 14, 1940 (703-718). [J. c.]
- VII, 4    **631.811.7 : 631.414.324 Balks, R.; Wehrmann, O.** The influence of different cations on the sulphate uptake of rye seedlings. *Bodenk. PflErnähr.* 31, 1944 (129-137). [G.]
- IV, 4    **631.811.8 Schuphan, W.** The importance of chlorides for plants, and especially for vegetables. *ForschDienst.* 11, 1941 (161-176). [G.]
- V, 2    **631.811.9—Mazé, P.; Mazé, P. J.** Researches on the mineral nutrition of higher plants. *C.R. Soc. Biol. Paris* 132, 1939 (375-377). *ForschDienst.* 12 (36)
- 631.811.9—Elsenmenger, W. S.; Kucinski, K. S.** Absorption by food plants of certain chemical elements important in human physiology and nutrition. *Mass. Agric. Expt. Sta. Bull.* 374, 1940 (12-15). *C.A.* 35 (160).
- 631.811.9—Jacks, G. V.; Scherbatoff, H.** The minor elements of the soil. *Imp. Bur. Soil Sci. Tech. Commun.* 39, 1940, pp. 86. *Biol. Abs.* 18 (1005).
- 631.811.9—Javillier, M.; Leroux, D.** The effect of some trace elements on the development of a leguminous plant. *C.R. Acad. Agric.* 26, 1940 (480-492). *C.A.* 37 (6305).
- V, 1    **631.811.9—Bobko, E. V.** The present state of the problem of using microelements as fertilizers. *Priroda* No. 2, 1941 (38-47). [R.]
- ✓ **631.811.9—Shive, J. W.** Significant rôles of trace elements in the nutrition of plants. *Plant Physiol.* 16, 1941 (435-445).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.811.9—Teakle, L. J. H., et al. Experiments with micro-elements for the growth of crops in Western Australia. II. Experiments on high level sandy and gravelly country in the southern wheat belt. III. Experiments with potatoes, vegetables and other crops in the Albany district. IV. Experiments at Muchea and Maida Vale. *J. Dept. Agric. W. Aust.* 18, 1941 (91-132). V, 1
- 631.811.9—Willis, L. G. The status of minor elements in Liebig's day and recent developments. *Amer. Fert.* 94, No. 7, 1941 (5-7, 24, 26).
- 631.811.9—Scharrer, K. Significance of the trace elements. *ForschDienst. Sonderh.* 16, 1942 (180-188). C.A. 37 (4512). [G.]
- 631.811.9—Schropp, W.; Arenz, B. The effect of Hoagland's A-Z solutions and of some of their components on plant growth. *Bodenk. PflErnähr.* 26, 1942 (198-246). [G.]
- 631.811.9—Trnka, R.; Frantek, V.; Praskac, L. The effect of trace elements on the development of plants. I. Research on the La Plata species of oil flax. *Sborn. Čsl. Akad. Zeměd.* 17, 1942 (17-22). C.A. 37 (6307).
- 631.811.9—Brenchley, W. E. Minor elements and plant growth. *Biol. Rev.* 18, 1943 (159-171).
- 631.811.9—Harris, H. C. The effect of minor elements on the growth of certain crops. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (345-352). Biol. Abs. 17 (2190). VII, 1
- 631.811.9—Piper, C. S.; Walkley, A. Copper, zinc, and manganese in some plants of agricultural interest. *Aust. J. Coun. Sci. Indust. Res.* 16, 1943 (217-234). VII, 2
- 631.811.9:539.16—Baranov, V. I. Assimilation of radioactive elements by plants. *C.R. Acad. Sci. (U.S.S.R.)* 24, 1939 (951-954). Hort. Abs. 12 (124).
- 631.811.9:539.16—Drobkov, A. A. Influence of radioactive elements on the yield of plants. *Bull. Acad. Sci. (U.S.S.R.) (Cl. Sci. Math.) Sér. Biol.* 1940 (783-801). Biol. Abs. 16 (235). V, 3
- 631.811.9:546.15—Lewis, J. C.; Powers, W. L. Iodine in relation to plant nutrition. *J. Agric. Res.* 63, 1941 (623-637). V, 2
- 631.811.9:546.15—Carlson, W. E. Biological experiments with iodine. *J. Amer. Soc. Agron.* 34, 1942 (861-862). Herb. Abs. 13 (53).
- 631.811.9:546.27—Lucchetti, E. Further researches on the biological action of boric acid. *Ann. Fac. Agrar. Univ. Pisa* 2, 1939 (304-336). E.S.R. 83 (451). [I.f.g.e.] V, 1
- 631.811.9:546.27—Bertrand, D.; Silberstein, L. The distribution of boron among plant species. *C.R.* 211, 1940 (624-625). E.S.R. 87 (354). VI, 1
- 631.811.9:546.27—Neuweiller, E. Investigations on the effect of boron on some crop plants. *Landw. Jahrb. Schweiz* 54, 1940 (916-935). [G.I.] IV, 4
- 631.811.9:546.27—Powers, W. L. Boron in relation to agriculture in the Pacific Northwest. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (290-296). IV, 1
- 631.811.9:546.27—Schropp, W.; Arenz, B. Further water-culture experiments with boron. *Bodenk. PflErnähr.* 19, 1940 (160-166). C.A. 35 (6285). [G.] VI, 3

# BIBLIOGRAPHY OF SOIL SCIENCE

- 631.811.9 : 546.27** - **Dennis, A. C. ; Dennis, R. W. G.** Boron and plant life--Part IV. Developments in agriculture and horticulture, 1939-40. *Fert. Feed. J.* 25, 26, 1940, 1941. Repr., pp. 24.
- 631.811.9 : 546.27** - **Schropp, W.** A continuation of water-culture experiments with boron. *Bodenk. Pflernähr.* 25, 1941 (272-279). [G.]
- VI, 3 **631.811.9 : 546.27** - **Dennis, A. C. ; Dennis, R. W. G.** Boron and plant life. Part V. Developments in agriculture and horticulture, 1940-42. *Fert. Feed. J.* 29, 1943. Repr., pp. 38.
- VII, 2 **631.811.9 : 546.27** - **Colwell, W. E. ; Cummings, R. W.** Chemical and biological studies on aqueous solutions of boric acid and of calcium, sodium, and potassium metaborates. *Soil Sci.* 57, 1944 (37-49).
- VII, 4 **631.811.9 : 546.27** - **Truninger, E.** Experiments and studies on the effects of boron as a trace element. *Landw. Jahrb. Schweiz* 58, 1944 (1-36). R.A.M. 23 (277). [G.]
- 631.811.9 : 546.27 : 016** - **Jameson, D. H. ; Schmidt, C. M.** Boron as a plant nutrient. A bibliography of literature published and reviewed, January, 1939 through December, 1939 (with index). *Amer. Potash Inst., Inc.*, Washington 1940, pp. 81. Biol. Abs. 14 (1341).
- V, 4 **631.811.9 : 546.27 : 016** - **Schmidt, C. M. ; Jameson, D. H.** Boron as a plant nutrient. A bibliography of literature published and reviewed, January, 1940 through December, 1940. *Amer. Potash Inst., Inc.*, Washington 1941, pp. 68. Biol. Abs. 16 (732).
- 631.811.9 : 546.27 : 016** - **American Potash Institute.** List of references to boron literature, January to March, 1942, inclusive. *Amer. Potash Inst., Inc.*, Washington 1942, pp. 4. Biol. Abs. 16 (1889).
- V, 6 **631.811.9 : 546.27 : 546.711** - **Keese, H.** A contribution to the question of the effects of boron and manganese on plant growth with special reference to the effect of applying lime. *Bodenk. Pfl Ernähr.* 27, 1942 (116-134). [G.]
- V, 3 **631.811.9 : 546.35** - **Richards, F. J.** Physiological studies in plant nutrition. XI. The effect on growth of rubidium with low potassium supply, and modification of this effect by other nutrients. pt. 1. The effect on total dry weight. *Ann. Bot.* 5, 1941 (263-296). E.S.R. 86 (305).
- IV, 6 **631.811.9 : 546.47** - **Riceman, D. S. ; Anderson, A. J.** Response to zinc on a South Australian soil. *J. Aust. Inst. Agric. Sci.* 7, 1941 (82).
- VI, 3 **631.811.9 : 546.47** - **Archibald, E. ; Wann, F. B.** The zinc content of "little leaf" and normal leaves. Abs. in *Amer. J. Bot.* 29, 1942 (694). R.A.M. 22 (100).
- 631.811.9 : 546.47** - **Reed, H. S.** The relation of zinc to seed production. *J. Agric. Res.* 64, 1942 (635-644).
- VII, 2 **631.811.9 : 546.47** - **Hibbard, P. L.** Comparative amounts of zinc extracted from soils by a chemical solvent and by plants. *Soil Sci.* 56, 1943 (433-442).
- V, 6 **631.811.9 : 546.56** - **Wild, A. S. ; Teakle, L. J. H.** Experiments with micro-elements for the growth of crops in Western Australia. V. Experiments at Kulin (Jilakin) and Bullaring in the southern wheat belt, 1941. *J. Dept. Agric. W. Aust.* 19, 1942 (71-78).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.811.9 : 546.56**—Teakle, L. J. H.; Morgan, E. T. Experiments with micro-elements for the growth of crops in Western Australia. VII. The effectiveness of various types of copper fertilisers for potatoes at Bornholm, Albany. VIII.—Experiments to determine the effectiveness of different sources of copper and the residual value for cereals on copper deficient land at Dandaragan and Gingin. *J. Dept. Agric. W. Aust.* 20, 1943 (119-123, 123-130).
- 631.811.9 : 546.711** Dennis, R. W. G. Plants and manganese. *Fert. Feed. J.* 26, 1941 (187-188, 189-190, 205-207, 219, 221-222, 235, 237).
- 631.811.9 : 546.711** Netto, J. E. de P. Manganese in the soil of the State of São Paulo. *An. Assoc. Quím. Brasil* 1, 1942 (126-152). B.C.A. A.111, 1942 (949).
- 631.811.9 : 546.711** Van der Merwe, D. J. The occurrence, characteristics and function of manganese in soil and plant. *Farm. S. Africa* 17, 1942 (360-364). R.A.M. 21 (467).
- 631.811.9 : 546.76** Gericke, S. Investigations on the effect of the trace element chromium on plant growth. *Bodenk. Pfl.-Ernähr.* 33, 1943 (116-128). [G.]
- 631.811.9 : 546.77** Bobko, E. V.; Savvina, A. G. The role of molybdenum in the development of plants. *C.R. Acad. Sci. (U.S.S.R.)* 29, 1940 (507-509). Herb. Abs. 11 (168).
- 631.811.9 : 546.77** Piper, C. S. Molybdenum as an essential element for plant growth. *J. Aust. Inst. Agric. Sci.* 6, 1940 (162-164). R.A.M. 20 (56).
- 631.811.9 : 546.77** Stephens, C. G.; Oertel, A. C. Responses of plants to molybdenum in pot experiments on the Cressy shaley clay-loam. *Aust. J. Comm. Sci. Indust. Res.* 16, 1943 (69-73).
- 631.811.9 : 546.841** Gillern, C. von. Experiments on the stimulatory action of thorium nitrate on plant growth. First report. *Bodenk. Pfl.-Ernähr.* 27, 1942 (197-202). [G.]
- 631.811.9 : 546.881** Gericke, S.; Rennenkampff, E. von. The effect of vanadium on plant growth. *Bodenk. Pfl.-Ernähr.* 18, 1940 (305-315). C.A. 35 (558). [G.]
- 631.811.9 : 577.15.04** Journe, C. Experiments carried out at Gembloux on hormones in 1938. *C.R. Inst. Int. Rech. Better.* 9, 1939 (85-87). C.A. 34 (6327).
- 631.811.9 : 577.15.04** Sellei, J.; Sellei, H.; Mayer, A., et al. Effects of flabrescin on plant growth. *Amer. J. Bot.* 29, 1942 (513-522).
- 631.811.9 : 577.15.04** Stewart, W. S.; Anderson, M. S. Auxins in some American soils. *Bot. Gaz.* 103, 1942 (570-575). E.S.R. 87 (344). Bot. Abs. 16 (1645).
- 631.811.9 : 577.15.04** Stewart, W. S.; Keyes, M. G.; Anderson, M. S. Extraction of auxin from virgin soils. *Soil Sci.* 53, 1942 (299-308).
- 631.811.9 : 577.15.04** Kiesselbach, T. A. Crop response to hormone seed treatments. *J. Amer. Soc. Agron.* 35, 1943 (321-331).
- 631.811.9 : 577.16** Arnon, D. I. Vitamin B<sub>1</sub> in relation to the growth of green plants. *Science* 92, 1940 (264-266).

## BIBLIOGRAPHY OF SOIL SCIENCE

- V, 3     **631.811.9 : 577.16**—Haber, E. S. ; Edgcombe, S. W. The influence of vitamin B<sub>1</sub> and other growth-promoting substances on the growth of plants. *Trans. Iowa St. Hort. Soc.* 75, 1940 (142-153). E.S.R. 86 (326).
- IV, 4     **631.811.9 : 577.16**—Shive, J. W. (Vitamin) B<sub>1</sub> and its use as a growth-regulating substance for green plants. *N.J. Agric. Expt. Sta. Circ.* 399, 1940 (3-7). C.A. 34 (7982).
- V, 1     **631.811.9 : 577.16**—Ahlgren, G. H. The effect of adding vitamin B<sub>1</sub> (thiamin) to several grass species. *J. Amer. Soc. Agron.* 33, 1941 (572-576). Biol. Abs. 15 (1820).
- IV, 6     **631.811.9 : 577.16**—Hitchcock, A. E. ; Zimmerman, P. W. Further tests with vitamin B<sub>1</sub> on established plants and on cuttings. *Boyce Thompson Inst. Contr.* 12, 1941 (143-156).
- V, 6     **631.811.9 : 577.16**—Minnum, E. C. Effect of vitamins on growth of radish and cauliflower. *Bot. Gaz.* 103, 1941 (397-400). E.S.R. 87 (39).
- V, 3     **631.811.9 : 577.16**—Murneck, A. E. Vitamin B<sub>1</sub> vs. organic matter for plant growth. *Proc. Amer. Soc. Hort. Sci.* (1940) 38, 1941 (715-717).
- IV, 5     **631.811.9 : 577.16**—Myers, H. E. ; Jugenheimer, R. W. ; Heyne, E. G. Vitamin B<sub>1</sub> (thiamin chloride) and the yield of corn and sorghum under field conditions. *J. Amer. Soc. Agron.* 33, 1941 (474-476).
- IV, 6     **631.811.9 : 577.16**—Parker, E. R. ; Turrell, F. M. ; Bonner, J. Effects of organic matter and certain growth substances on the development of young orange trees in the orchard. *Proc. Amer. Soc. Hort. Sci.* (1940) 38, 1941 (49-58). C.A. 35 (4804).
- IV, 4     **631.811.9 : 577.16**—Templeman, W. G. ; Pollard, N. The effect of vitamin B<sub>1</sub> and nicotinic acid upon the growth and yield of spring oats and tomatoes in sand culture. *Ann. Bot.* 5, 1941 (133-147).
- V, 1     **631.811.9 : 577.16**—Went, F. W. Vitamin B<sub>1</sub> and other hormones for plants. *Citrus Grow.* No. 86, 1941 (3, 5).
- VI, 3     **631.811.9 : 577.16**—Fraps, G. S. ; Fudge, J. F. Vitamin B<sub>1</sub> (thiamin) and other vitamins as fertilizers. *Tex. Agric. Expt. Sta. Circ.* 95, 1942, pp. 16. C.A. 36 (4260).
- V, 4     **631.811.9 : 577.16**—Woodhouse, W. W., Jr. ; Morris, H. D. Effect of vitamin B<sub>1</sub> on field crops grown on several North Carolina soils. *J. Amer. Soc. Agron.* 34, 1942 (322-326).
- 631.811.91**—Johansson, S. Water economy of the soil. *Kgl. Lantbr.Akad. Tidskr.* 79, 1940 (273-292). C.A. 35 (1559). [Sw.g.]
- VII, 4     **631.811.91**—Mitscherlich, E. A. Influence of soil water on plant yields. *ForschDienst. Sonderh.* 14, 1941 (10-27). C.A. 38 (1769).
- 631.811.91**—Mündel, G. A contribution to the problem of the relative water utilization of our agricultural crops. *Bodenk. PflErnähr.* 26, 1942 (269-291). [G.]
- IV, 5     **631.811.91 : 581.144.2**—Kramer, P. J. ; Colle, T. S. An estimation of the volume of water made available by root extension. *Plant Physiol.* 15, 1940 (743-747). E.S.R. 84 (744).
- V, 3     **631.811.91 : 581.144.2**—Partridge, N. L. Comparative water usage and depth of rooting of some species of grass. *Proc. Amer. Soc. Hort. Sci.* (1940) 39, 1941 (426-432). E.S.R. 85 (318).

## FERTILIZERS AND GENERAL AGRONOMY

- 631.811.91 : 631.436—Kramer, P. J.** Species differences with respect to water absorption at low soil temperatures. *Amer. J. Bot.* 29, 1942 (828-832). VI, 2
- 631.811.91 : 631.81—Shcherba, S. V.** The effect of watering on the utilization of high doses of mineral fertilizers under conditions of the zone of adequate moisture. *Khim. Sotsial. Zemled.* No. 10, 1940 (33-35). [R.] IV, 6
- 631.811.91 : 631.81—Murphy, H. F.** The effect of soil fertility on the efficiency of water usage by plants. *Proc. Okla. Acad. Sci.* 21, 1941 (77-78). *Biol. Abs.* 16 (215). V, 3
- 631.811.91 : 631.81—Stephenson, R. E.** Fertilizing to make water go further. *Better Crops with Plant Food* 28, No. 6, 1944 (25-26, 46-48). VII, 4
- 631.811.91 : 631.824—Radchenko, A. G.** The role of magnesium chloride in improving the water-nutritive properties of podzolized soils for sugar beets and oats. *Sci. Stud. Sug. Res. Inst. Moscow* (1937), 1939 (228-229). C.A. 36 (6286). VI, 2

### 631.812.6 PROPERTIES AND APPLICATION OF FERTILIZERS

- 631.812—Pestov, N. E.** The mixability of fertilizers. *Khim. Sotsial. Zemled.* No. 5, 1940 (59). [R.]
- 631.812—Pestov, N. E.** The prevention and determination of caking tendency in granular chemical products. *Zh. Khim. Prom.* 17, No. 11, 1940 (33-36). C.A. 35 (2659).
- 631.812—Smalley, H. R.** Trends in fertilizer manufacture and usage. *Amer. Fert.* 94, No. 1, 1941 (10-11, 24). B.C.A.B. III, 1941 (142).
- 631.812 : 636—Jarnagin, M. P.** Fertilizer industry's interest in livestock production. *Amer. Fert.* 95, No. 12, 1941 (8-9, 24, 26). B.C.A.B. III, 1942 (126).
- 631.813—Pestov, N. E.** Physical and physico-chemical properties of fertilizers. *Nauch. Inst. Udob.* 1919-39 (62-63). C.A. 36 (4264).
- 631.813—Anthony, J. L.; Pitner, J.; Dorman, C.** Neutral versus acid fertilizer. *Miss. Agric. Expt. Sta. Bull.* 338, 1940, pp. 15. E.S.R. 84 (15). IV, 3
- 631.813—Allen, H. R.; Gault, L.** Acid- and base-forming quality of fertilizers. *J. Assoc. Off. Agric. Chem.* 24, 1941 (293-298). B.C.A.B. III, 1941 (251).
- 631.813—Berkner, F.** The effect of soil "condition" on the yield and proportion of species in a barley-oat mixture. *Pflanzenbau* 17, 1941 (241-249). *Biol. Abs.* 16 (1225). V, 5
- 631.813—Collins, E. R.; Skinner, J. J.** Effect of dolomitic limestone on soils and crops when used as a neutralizing agent in complete fertilizers. *J. Amer. Soc. Agron.* 34, 1942 (894-901). VI, 1
- 631.813—Slater, C. S.** A fertilizer triangle for small whole number fertilizer ratios. *J. Amer. Soc. Agron.* 34, 1942 (955-957). VI, 1
- 631.813—Tolman, B.** Multiple- vs. single-factor experiments. *Proc. Amer. Soc. Sug. Beet Tech.* 3, 1942 (170-180). C.A. 38 (2782). VII, 4
- 631.813 : 619—Crawford, M.** Poisoning of cattle by artificial manures. *Trop. Agricul.* 96, 1941 (359-361). V, 1

# BIBLIOGRAPHY OF SOIL SCIENCE

- 631.816.2—Dikusar, I. G.** Mineral nutrition and the metabolism of cultivated plants. *Khim. Sotsial. Zemled.* 8, No. 10-11, 1939 (13-21). C.A. 36 (4649).
- VI, 3 **631.816.2—Andrews, F. S.** The influence of starter solutions on lettuce and celery seedlings on the Everglades muck. *Proc. Fla. St. Hort. Soc.* 54, 1941 (127-130). E.S.R. 88 (191).
- VII, 1 **631.816.2—Iversen, K.** Spring and autumn fertilizing with superphosphate and potash. *Tidsskr. Planteavl.* 46, 1941 (222-237). C.A. 37 (5818).
- 631.816.2—Prince, A. L.; Tiedjens, V. A.** Water solutions of ordinary mixed fertilizers for use in starting and side-dressing plants. *N. J. Agric. Expt. Sta. Circ.* 449, 1942, pp. 4. E.S.R. 88 (168).
- VII, 1 **631.816.2—Rahn, E. M.** A summary of starter solution experiments on tomatoes and cabbage at State College, Pennsylvania. *Proc. Amer. Soc. Hort. Sci.* 41, 1942 (305-309).
- VI, 1 **631.816.2—Schlleszus, A.** The effect of basal manuring with phosphorus, potassium and nitrogen, given at different times, upon crop yield and nutrient uptake. *Bodenk. Pflernähr.* 28, 1942 (31-56). [G.]
- VII, 2 **631.816.2—Alov, A. S.** The influence of initial soil conditions on the effectiveness of fertilizers applied to cereals at different times. *Pedology* No. 7, 1943 (24-33). [R.]
- V, 1 **631.816.3—Cook, H. L.; Drake, M.; Krantz, B. A., et al.** Investigations in 1940 at Purdue University involving studies on fertilizer placement for corn and soybeans. *Proc. Natl. Joint Ctee. Fert. Appl.* 16, 1940 (90-96). Biol. Abs. 15 (1780).
- 631.816.3—Mahoney, C. H., et al.** Summary of Maryland fertilizer-placement experiments on vegetable crops. *Proc. Natl. Joint Ctee. Fert. Appl.* 16, 1940 (131-139). Biol. Abs. 15 (1785).
- 631.816.3—Metzger, W. H.** Effect of depth of placement of fertilizer upon response of corn and sorghum. *Proc. Natl. Joint Ctee. Fert. Appl.* 16, 1940 (105-106). Biol. Abs. 15 (1786).
- V, 1 **631.816.3—Millar, C. E.; Cook, R. L.; Davis, J. F.** The effect of fertilizer placement on the yield and stand of cannerly peas at the Michigan Experiment Station in 1940. *Proc. Natl. Joint Ctee. Fert. Appl.* 16, 1940 (110-112). Biol. Abs. 15 (1786).
- V, 1 **631.816.3—Nettles, V. F.** Some effective methods of applying fertilizer. *Proc. Fla. St. Hort. Soc.* 53, 1940 (202-205). Biol. Abs. 15 (1892). E.S.R. 84 (330).
- VI, 3 **631.816.3—Baur, K.; Cumings, G. A.** Effect of fertilizer placement on yields of peas used for frozen pack in Western Washington. *Proc. Natl. Joint Ctee. Fert. Appl.* 17, 1941 (83-87). Biol. Abs. 17 (1062).
- 631.816.3—Bear, F. E.** Putting fertilizer where it can do the most good. *Amer. Fert.* 95, No. 3, 1941 (10-11).
- VII, 1 **631.816.3—Bear, F. E.** Principles of fertilizer application. *Proc. Natl. Joint Ctee. Fert. Appl.* 17, 1941 (29-35). Biol. Abs. 17 (1062).
- 631.816.3—Bryner, W.** The technique of fruit-tree manuring. *Schweiz. Ztschr. Obst- u. Weinb.* 50, 1941 (125-128). Hort. Abs. 11 (280).
- V, 2 **631.816.3—Magnitsky, K. P.** Deep application of fertilizers in orchards with sprayers. *Dokl. Akad. S.-Kh. Nauk* No. 11, 1941 (19-23). [R.]

# FERTILIZERS AND GENERAL AGRONOMY

- 631.816.3—Mahoney, C. H., et al.** Summary of Maryland fertilizer-placement experiments on vegetable crops. 1941. *Proc. Natl. Joint Cttee. Fert. Appl.* 17, 1941 (105-113). Biol. Abs. 17 (1072). VI, 3
- 631.816.3 Meler, K.** Manuring of fruit trees. *Schweiz. Ztschr. Obst- u. Weinb.* 50, 1941 (111-125). Hort. Abs. 11 (280). V, 2
- 631.816.3 Sayre, C. B.** Fertilizer placement experiments in the Northeast region. *Proc. Natl. Joint Cttee. Fert. Appl.* 17, 1941 (16-19). Biol. Abs. 17 (1069).
- 631.816.3 Tiedjens, V. A.** Applying fertilizer in liquid form. *Agric. Engng.* 22, 1941 (440, 442).
- 631.816.3 Tiedjens, V. A.** Use of liquid fertilizers for growing vegetables. *Amer. Fert.* 94, No. 9, 1941 (9-10, 22).
- 631.816.3 Borden, R. J.** Are there possibilities in subsoil fertilization? *Hawaii. Plant. Rec.* 46, 1942 (59-64). VI, 1
- 631.816.3 Fairbank, J. P.; Minges, P. A.** An accurate fertilizer applicator for field test plots. *Proc. Amer. Soc. Hort. Sci.* 41, 1942 (310-314).
- 631.816.3 Sayre, C. B.** An easier, more effective method of applying fertilizers. *Amer. Fert.* 97, No. 6, 1942 (5-7, 22, 24, 26). *Farm Rec.* 8, No. 3, 1942 (8-10). VI, 1
- 631.816.3 Wilde, S. A.; Wittenkamp, R.** Duff briquette fertilizers: their preparation, use, and effect upon the growth of trees and other plants. *J. Amer. Soc. Agron.* 34, 1942 (736-746). VI, 1
- 631.816.3 Hollar, V. E.; Haber, E. S.** Cultural and fertilizer studies with sweet potatoes, muskmelons, and watermelons on Buckner coarse sand. *Hawa. Agric. Expt. Sta. Bull.* 156, 1943 (801-823). E.S.R. 89 (541). VII, 2
- 631.816.3 Weidemann, A. G.** Fertilizer placement studies on Hillsdale sandy loam soil. *J. Amer. Soc. Agron.* 35, 1943 (747-767). VII, 1
- 631.816.3 Chapman, C. J.** Plow-sole fertilizers increase the profits. *Better Crops with Plant Food* 28, 1944 (7-12, 46-48). VII, 3
- 631.816.3 Hanley, F.** Sowing seed and fertilizer together. *J. Min. Agric.* 50, 1944 (493-496). VII, 2
- 631.816.3 Millar, C. E.** The plow-under method of applying fertilizer. *Mich. Agric. Expt. Sta. Quart. Bull.* 26, 1944 (173-176). VII, 3
- 631.816.3 : 539.215 Parrish, P.** Granulation and the fertilizer industry. *Fert. Feed. J.* 29, 1943 (71-73, 75).
- 631.816.3 : 631.432.3 Blume, J. M.; Parker, M. M.; Purvis, E. R.** The influence of placement upon the movement of fertilizer salts in the soil. *Amer. Fert.* 93, No. 13, 1940 (8-9, 24, 26). IV, 3

## 631.82 MINERAL AMENDMENTS (OTHER THAN N, P, K)

- 631.821 : 669.16 MacIntire, W. H.; Hardin, L. J.; Winterberg, S. H., et al.** Nature and liming value of quenched calcium silicate slag. *Soil Sci.* 50, 1940 (219-237). IV, 1
- 631.821 : 669.16—Brüne, F.** Manurial trials with calcareous marl and with blast-furnace slag on a high-moor soil. *Bodenk. Pfl. Ernähr.* 23, 1941 (360-363). [G.] IV, 6
- 631.821 : 669.16—Gericke, S.** New results from manurial experiments with blast-furnace slag. *ForschDienst.* 12, 1941 (47-49). [G.]



## BIBLIOGRAPHY OF SOIL SCIENCE

- V, 4     **631.821 : 669.16**—Iyer, K. S.; Iyer, S. V. Activation of blast-furnace slag for employment to correct acidity and alkalinity of soils. *J. Indian Chem. Soc. Indust. Ed.* 4, 1941 (88-90). B.C.A.B. III, 1942 (43).
- VII, 2     **631.821 : 669.16**—Borenstein, S. I. The use of blast-furnace slag in soil amelioration. *Sborn. Pam. W.R. Williams*, 1942 (489-493). [R.]
- VI, 4     **631.821 : 669.16**—MacIntire, W. H.; Winterberg, S. H. Quenched calcium silicate slag. *Amer. Fert.* 98, No. 11, 1943 (5-8, 22, 24, 26).
- 631.821 : 669.16 : 546.22**—Martin, A. E.; Glockler, G.; Wood, C. E. Form of sulfur occurrence in blast-furnace slag. *U.S. Bur. Mines Rept. Invest.* 3552, pp. 14. C.A. 35 (3572).
- VI, 3     **631.821.1**—Shcherba, S. V. Liming of soils. *Nauch. Inst. Udob.* 1919-39 (97-100). C.A. 36 (4252).
- VII, 3     **631.821.1**—Klemann, F. The effect of heavy single applications of slaked lime on early stages of development of young seedlings. *Bodenk. PflErnähr.* 20, 1940 (123-128). C.A. 38 (1598).
- IV, 3     **631.821.1**—Schmitt, L. The action of Schkopau and Oppau fertilizer lime incorporated into the soil and as top-dressing. *Bodenk. PflErnähr.* 18, 1940 (340-353). C.A. 35 (568). [G.]
- 631.821.1**—White, J. W. The relation of liming to fertilizer efficiency. *Comm. Fert.* 62, No. 6, 1941 (9-10, 12, 14-16). E.S.R. 86 (161).
- VII, 2     **631.821.1**—Elbert, W. Experiments with technical limes. *ForschDienst. Sonderh.* 16, 1942 (196-202). C.A. 37 (4515).
- VI, 2     **631.821.1**—Kirsanov, A. T. The arrangement of liming experiments and the calculation of the results. *Pedology* No. 3-4, 1942 (12-41). [R.e.]
- 631.821.1**—Schollenberger, C. J.; Salter, R. M. A chart for evaluating agricultural limestone. *J. Amer. Soc. Agron.* 35, 1943 (955-966).
- 631.821.1**—Davies, W. M. Lime in agriculture. *Chem. Indust.* No. 4, 1944 (32-33).
- V, 4     **631.821.1 : 539.215**—Doak, B. W.; Elliott, A. G.; Lynch, P. B. Effect of fineness of grinding and hardness of limestones on their efficacy as pasture top-dressing. I. Analytical data. II. Yield data. *N.Z. J. Sci. Tech.* 23, 1941 (24A-39A).
- IV, 6     **631.821.1 : 545**—Jones, G. B. Measurement of reactivity of agricultural limestones. *N.Z. J. Sci. Tech.* 22, 1941 (258A-262A).
- VII, 1     **631.821.1 : 545**—Davies, E. B. A field test for the carbonate content of limestones. *N.Z. J. Sci. Tech.* 24, 1942 (151A-156A).
- VII, 3     **631.821.1 : 546.27**—Kedrov-Zikhman, O. K. Mg and B as factors increasing the effectiveness of the liming of the soils of the U.S.S.R. *Trudy TSKhA* 5, No. 1, 1940 (194-216). C.A. 38 (609).
- IV, 2     **631.821.1 : 546.27**—Midgley, A. R.; Dunklee, D. E. The cause and nature of overliming injury. *VI. Agric. Expt. Sta. Bull.* 460, 1940, pp. 22. C.A. 34 (7509).
- IV, 1     **631.821.1 : 546.27**—Tiulin, A. S. The significance of boron for the utilization of the mineral nutrients of podzol soils. *Pedology* No. 3, 1940 (39-53). [R.g.]

# FERTILIZERS AND GENERAL AGRONOMY

- 631.821.1 : 546.27—Truninger, E.** The boron content of natural lime as a factor determining the relative effectiveness of ground limestones and marls as soil amendments. *Landw. Jahrb. Schweiz* 54, 1940 (689-705). [G.f.] IV, 2
- 631.821.1 : 546.27—Truninger, E.** The harmful effect of calcareous water in pot tests: its causes and prevention. *Bodenk. PflErnähr.* 17, 1940 (92-100). C.A. 35 (245). [G.] IV, 3
- 631.821.1 : 546.73—Dixon, J. K.; Kidson, E. B.** The influence of Southland limestones on the cobalt content of pasture at Morton Mains. *N.Z. J. Sci. Tech.* 22, 1940 (1A-6A). IV, 1
- 631.821.1 : 546.73—Dixon, J. K.; Kidson, E. B.** The effect of a heavy dressing of Southland limestones on the health of lambs at Morton Mains. *N.Z. J. Sci. Tech.* 23, 1941 (47A-50A). V, 4
- 631.821.1 : 581.192—Lambin, A. Z.; Lambina, T. F.** Acidification and liming of soils as factors affecting the yields of plants. *Trudy Omsk. S.-Kh. Inst.* 4:17, 1939 (34-55). C.A. 36 (6287). VI, 2
- 631.821.1 : 631.415.1—Nehring, K.** Changes undergone by chalk in soil and their effects upon yield, nutrient uptake and leaching. *Landw. Jahrb.* 91, 1942 (881-940). [G.] VI, 1
- 631.821.1 : 631.415.1—Oldershaw, A. W.; Garner, H. V.** Tunstall experiments with carbonate of lime. *J. Min. Agric.* 49, 1942 (37-39). VII, 3
- 631.821.1 : 631.415.1—Kick, H.** The change in time of the reaction and lime status of the soil and of Egnér's lactate number in two protracted lime experiments. *Bodenk. PflErnähr.* 32, 1943 (375-390). [G.] VII, 3
- 631.821.1 : 631.416—Salonen, M.** The influence exerted by liming on the mobilization of nitrogen and phosphoric acid in soils. *Maat. Aikak.* 12, 1940 (142-156). *Mezőg. Kutat.* 14 (72). [H.g.] VII, 1
- 631.821.1 : 631.416—Dunn, L. E.** Effect of lime on availability of nutrients in certain western Washington soils. *Soil Sci.* 56, 1943 (297-316). VII, 1
- 631.821.1 : 631.416.2—Engels, O.** The effect of an application of lime on the solubility of phosphoric acid in the soil. *Forsch.-Dienst. Sonderh.* 15, 1941 (57-62). C.A. 38 (1829). VII, 4
- 631.821.1 : 631.416.4—MacIntire, W. H.** The effect of liming materials upon the solubility of potassium compounds in the soil. *Better Crops with Plant Food* 27, No. 9, 1943 (9-12, 45-47). *Amer. Fert.* 99, No. 13, 1943 (7-9, 24, 26). VII, 2
- 631.821.1 : 631.416.4—Peech, M.; Bradfield, R.** The effect of lime and magnesia on the soil potassium and on the absorption of potassium by plants. *Soil Sci.* 55, 1943 (37-48). VI, 3
- 631.821.1 : 631.432.2—Heinrich, F.** The effect of caustic lime on the water regime of sand soils. *Bodenk. PflErnähr.* 34, 1944 (102-117). [G.] VII, 4
- 631.821.1 : 631.432.3—Longnecker, T. C.; Sprague, H. B.** Rate of penetration of lime in soils under permanent grass. *Soil Sci.* 50, 1940 (277-288). IV, 1
- 631.821.1 : 631.81—Ernest, E.** The efficiency of lime in conjunction with various manures and the effect of manuring or fertilizing without and with liming. *Bodenk. PflErnähr.* 30, 1942 (173-179). [G.] VII, 3

# BIBLIOGRAPHY OF SOIL SCIENCE

- VI, 2      **631.821.1 : 631.811.2** MacIntire, W. H.; Hatcher, B. W. The beneficial effect of preliming upon  $PO_4$  uptake from incorporations of monocalcium phosphate. *J. Amer. Soc. Agron.* 34, 1942 (1010-1016).
- IV, 2      **631.821.1 : 631.812** Jones, G. H. G. Changes in composition of hydrated lime stored in non-airtight containers. *E. Afric. Agric. J.* 5, 1940 (383-384). C.A. 34 (7547).
- IV, 6      **631.821.1 : 631.816.3** Albrecht, W. A. Drilling limestone for legumes. *Missouri Agric. Expt. Sta. Bull.* 429, 1941, pp. 20.
- V, 3      **631.821.1 : 631.816.3** Kirshtein, F. A. Methods of applying lime. *Khm. Selsal. Zemel.* No. 5, 1941 (40-44). [R]
- VII, 3      **631.821.1 : 631.816.3** Midgley, A. R.; Dunklee, D. E. Spreading lime with manure. *Tr. Agric. Expt. Sta. Pamph.* 6, 1943, pp. 4. E.S.R. 90 (455).
- IV, 4      **631.821.1 : 631.824** Kedrov-Zikhman, O. K.; Dankova-Anokhina, M. V. Relation of serradella to soil liming. *Khm. Selsal. Zemel.* No. 4, 1940 (46-55). *Pedology* No. 10, 1940 (118).
- V, 4      **631.821.2** Burvill, G. H. Gypsum. Its place in agriculture. *J. Inst. Agric. W. Aust.* 18, 1941 (249-252).
- V, 4      **631.821.2** Vanoni, I. E.; Conrad, J. P. Calcium- and sulfate-ion concentrations in a soil receiving excess gypsum, as influenced by several factors. *Soil Sci.* 53, 1942 (125-133).
- IV, 1      **631.822** Gerth, G. The possibilities of rock meal as a soil improver, and their significance for the rock-quarrying industries. *Fortschr.* 15, 1939 (435-436). *For. Abs.* 2 (115). [G]
- IV, 1      **631.822** Coles, R. Marl and marling. *J. Min. Agric.* 47, 1940 (159-162).
- IV, 6      **631.822** Kleffmann. The utilization of lake mud. *Deut. Landw. Ztg.* 9, 1940 (242). *Fortschr.* 11 (54). [G]
- IV, 5      **631.822** Schmitt, H. Has powdered stone a future as a fertilizer material. *Düngemittel* 2, 1940 (97-101). C.A. 35 (1923).
- V, 3      **631.822** Iwersen, J. An investigation of the utility of Blausand as soil amendment. *Landw. Jahrb.* 91, 1941 (234-265). [G]
- IV, 6      **631.822** McGeorge, W. T. Influence of Colorado river silt on some properties of Yuma mesa sandy soil. *Ariz. Agric. Expt. Sta. Tech. Bull.* 91, 1941 (199-217).
- V, 1      **631.822** Saunders, G. The claying of fen lands. *J. Min. Agric.* 48, 1941 (31-39).
- V, 1      **631.822** Stebbing, W. P. D. Sub-soils in farming: the farmer and his mentors before William Smith. *Proc. Grad. Assoc.* 52, 1941 (257-272).
- VI, 3      **631.822** -Truninger, E. The old and the new of marling. *Schweiz. Bauer* 1941, pp. 16. C.A. 38 (3769).
- V, 3      **631.822** Gonzenbach, W. The problem of utilising lake mud. *Strassen Verkehr* 29, 1943 (31-33). [G]
- V, 3      **631.822 : 552.323** Peralta, F. de ; Decena, S. A. The effect of volcanic ash ejected from Mayon Volcano upon the growth of tobacco. *Philipp. J. Agric.* 11, 1940 (355-370).
- V, 3      **631.822 : 552.323** -Pang, K. K. Studies on the fertilizing value of Mayon volcano ash. V. Effects upon the growth and yield of soybean. *Philipp. Agricul.* 30, 1941 (500-513). *Biol. Abs.* 16 (721).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.822 : 552.323** —Ureta, V. G. „Studies on the fertilizing value of Mayon volcano ash: IV. Effects upon growth and development of abaca plants. *Philipp. Agricult.* 30, 1941 (401-420).
- 631.822 : 552.323.5** Albert, R. Investigations on the effect of complete ploughing and basalt fertilizing at various depths. *Forstarchiv* 16, 1940 (231-232). For. Abs. 4 (14). [G.] V, 5
- 631.822 : 631.411.4** Bauman, A. Crop cultivation on the sphagnum peat soils of the south Swedish uplands. Shown on the demonstration fields of the Swedish Peat Cultivation Association in 1938 and 1939. *Seenka Vall- o. MosskFören. Kvartalsskr.* 2, 1940 (129-141). Herb. Abs. 10 (292). [Sw.]
- 631.824** Korovatovskaia, M. K. The effect of dolomite flour on acid turf-podzol soil of the Gorky region. *Khim. Sotsial. Zemled.* No. 9, 1939 (65-66). C.A. 36 (1721). VI, 3
- 631.824** Vlasuk, P. A. Serpentine as fertilizer. *Tekhn. Kul.* No. 11-12, 1939 (71-74). C.A. 36 (6289). VI, 2
- 631.824** Nieschlag, F. The requirement of light sandy and moor soils for magnesium fertilizers. *Bodenk. PflErnähr.* 30, 1942 (157-173). C.A. 38 (1596). [G.] VII, 3
- 631.824** Thun, R. Lime and magnesia fertilization. *Forsch.-Dienst. Sonderh.* 16, 1942 (220-225). C.A. 37 (3549). VII, 2
- 631.824** —Dunklee, D. E.; Midgley, A. R. Our fertilizers need magnesium. *Better Crops with Plant Food* 28, No. 6, 1944 (20-24, 46).
- 631.824 : 546.284**—Blanck, E.; Melville, R.; Bocht, B. The fertilizing action of naturally-occurring calcium and magnesium silicates and carbonates and of silicic acid. *J. Landw.* 87, 1940 (309-325). C.A. 36 (2080).
- 631.824 : 631.416.7 8** —Peech, M. Soil reaction as a factor in fertilizer. *Citrus Grow. Florida* 2, No. 41, 1940 (3). C.A. 35 (1164). IV, 3
- 631.824 : 631.416.846** Bryan, O. C. Stabilizing effects of dolomite on the productivity of sandy soils. *Citrus Grow. Florida* 4, No. 4, 1942 (3). C.A. 36 (3610).
- 631.824 : 631.921.1** Jones, H. T. The use of magnesian lime. *J. Min. Agric.* 49, 1942 (35-37). V, 5
- 631.824 : 631.821.1** Selke, W. Factors influencing the use and choice of various forms of lime, with special reference to the magnesia question. *Bodenk. PflErnähr.* 28, 1942 (193-215). [G.] V, 6
- 631.824 : 631.821.1** Thun, R. A comparison of the effectiveness of grey dolomitic lime and ordinary white lime. *Bodenk. PflErnähr.* 28, 1942 (216-234). [G.] VI, 1
- 631.824 : 631.83** —Scharrer, K.; Schreiber, R. The effect of low-magnesium and high-magnesium potash fertilizers on the protein and oil yield of spring rape. *Bodenk. PflErnähr.* 25, 1941 (228-239). C.A. 38 (2156). VII, 4
- 631.824 : 631.83** —Scharrer, K.; Schreiber, R. The effects of applying potash and magnesium together on the total yield and on the protein and fat yields of hemp. *Bodenk. PflErnähr.* 30, 1943 (370-380). [G.] VI, 4
- 631.824 : 631.85** —Thun, R. The influence of manuring with lime, magnesian lime and magnesium sulphate on the uptake and effects of various phosphatic fertilizers. *Bodenk. PflErnähr.* 30, 1942 (137-156). [G.] VII, 3

# BIBLIOGRAPHY OF SOIL SCIENCE

- 631.828 : 546.284**—**Germanov, F. N.** Experimental results on silicate application to podzol soils. *Trudy Inst. Sever. Zern. Khoz.* No. 1, 1939 (86-97). *Pedology* No. 2, 1940 (111).
- 631.828 : 546.284**—**Taranovskaia, V. G.** The importance of silicate melioration for citrus fruits of different kinds, tung and basic fertilizer plants. *Sovet. Subtrop.* No. 5, 1940 (38-43). *C.A.* 36 (7210).
- V, 1 **631.828 : 546.331.31**—**Harmer, P. M. ; Benne, E. J.** The effect of common salt on the yield and composition of certain vegetable crops grown upon muck soil in Michigan. *Amer. Fert.* 91, No. 6, 1939 (22, 24). *E.S.R.* 84 (330).
- 631.828 : 546.331.31**—**Garner, H. V.** Agricultural salt. *J. Min. Agric.* 48, 1941 (183-185). *B.C.A.B.* III, 1942 (146).
- V, 2 **631.828 : 546.331.31** **Harmer, P. M. ; Benne, E. J.** Effects of applying common salt to a muck soil on the yield, composition, and quality of certain vegetable crops and on the composition of the soil producing them. *J. Amer. Soc. Agron.* 33, 1941 (952-979).
- VI, 1 **631.828 : 546.331.31**—**Garrad, G. H.** Agricultural salt as a substitute for potash. *Kent Farm. J.* 51, 1942 (36). *Hort. Abs.* 12 (146).
- V, 1 **631.828 : 546.56**—**Brüne, F.** Pot and field experiments on the availability to plants of the copper in a ground copper slag from the North German Refinery, Hamburg. *Bodenk. Pflernähr.* 20, 1940 (199-206). *ForschDienst.* 11 (93). [G.]
- V, 1 **631.828 : 546.56**—**Nicolaisen, W.** Pot and field experiments with copper slag. *Bodenk. Pflernähr.* 20, 1940 (207-225). *ForschDienst.* 11 (94). [G.]
- IV, 6 **631.828 : 546.56**—**Rademacher, B.** Experiments on the utility of a ground copper slag from the North German Refinery, Hamburg, as a copper fertilizer. *Bodenk. Pflernähr.* 20, 1941 (247-256). *R.A.M.* 20 (352). [G.]
- V, 5 **631.828 : 546.56**—**Scharrer, K.** Experiments on the manurial utilization of copper slag from the North German Refinery at Hamburg. *ForschDienst.* 13, 1942 (33-44). [G.]
- IV, 2 **631.828 : 546.711**—**Vlasiuk, P. A.** Utilizing waste products of the manganese ore industry as fertilizers for sugar beet. *Sci. Stud. Sug. Res. Inst. Moscow* (1937), 1939 (161-173). *Pedology* No. 5, 1940 (121).
- V, 2 **631.828 : 546.73 : 619**—**Mitchell, R. L. ; Scott, R. O. ; Stewart, A. B., et al.** Cobalt manuring and pining of stock. *Nature* 148, 1941 (725).
- VII, 1 **631.828 : 546.77**—**Lavollay, J.** A field experiment with a fertilizer containing molybdenum. *C.R. Acad. Agric.* 28, 1942 (353-354). *C.A.* 37 (5819).
- V, 1 **631.828 : 547.314.2**—**Copisarow, M.** Certain growth-promoters and fertilisers. I. Calcium carbide and ferrous ammonium sulphate. *J. Soc. Chem. Indust.* 60, 1941 (245-247).
- V, 1 **631.829**—**Ravich, M. B. ; Sarycheva, A. P.** Utilization of the products of combustion as carbon dioxide fertilizers. *Sovet. Subtrop.* No. 8, 1940 (41-43). [R.]

# FERTILIZERS AND GENERAL AGRONOMY

## 631.83 POTASSIUM FERTILIZERS

- 631.83/4 : 535.21**—**Borden, R. J.** Nitrogen-potash-sunlight relationships. *Hawaii. Plant. Rec.* 44, 1940 (237-241). IV, 2
- 631.83**—**Prokoshev, V. N.**; **Ustiužanina, E. M.** Comparative efficiency of different forms of potassium fertilizers. *Khim. Sotsial. Zemled.* No. 1, 1940 (32-42). *Pedology* No. 10, 1940 (114). IV, 4
- 631.83**—**Odland, T. E.**; **Cox, T. R.** Field experiments with potash fertilizers. *R.I. Agric. Expt. Sta. Bull.* 280, 1941, pp. 30. E.S.R. 86 (18). V, 2
- 631.83**—**Asdonk, T.**; **Jacob, A.** Summary of results of trials with potash manuring made from 1935 to 1938 under the auspices of the Agricultural Technical Potash Bureau and the German Potash Syndicate. III Cereals. IV Maize. V Turnips. *Bodenk. PflErnähr.* 31, 1943 (325-345). [G.]
- 631.83**—**Thun, R.** The relative effectiveness of various potash fertilizers. I. Field trials. *Bodenk. PflErnähr.* 33, 1943 (159-182). [G.] VII, 3
- 631.83 : 545**—**Lepper, W.** Determination of water-soluble potassium in potash fertilizers by direct precipitation. *Bodenk. PflErnähr.* 17, 1940 (112-124). *Biol. Abs.* 15 (1409). [G.]
- 631.83 : 545**—**Uhl, F. A.** New conductometric titration method for potassium as an example of physicochemical proximate analysis. *Bodenk. PflErnähr.* 19, 1940 (360-372). *C.A.* 36 (5940). [G.] VI, 2
- 631.83 : 545**—**Hughes, C. W.**; **Ford, O. W.** Effect of temperature of alcohol in determination of potash in fertilizers. *Indust. Engng. Chem. (Anal. Ed.)* 13, 1941 (233-234). IV, 5
- 631.83 : 553.72**—**American Fertilizer.** Utilization of sea water for potash production. *Amer. Fert.* 96, No. 1, 1942 (8-9).
- 631.83 : 631.432.3**—**Nostlitz, A. von.** Investigations into the loss of potassium fertilizer salts through leaching from soil. *Ernähr. Pfl.* 36, 1940 (85-89). *Biol. Abs.* 15 (1798). *Mezőg. Kutat.* 13 (293) [G.] IV, 4
- 631.83 : 631.461.3**—**Davidovsky, G. O.** The effect of K fertilizers on the content of nitrates in the soil. *Sovet. Khlopok* No. 11-12, 1940 (29-31). *C.A.* 37 (6395). VII, 2
- 631.83 : 631.811.2**—**Gericke, S.** The fertilizing action of phosphoric acid under various conditions of nitrogenous nutrition. Part 3. The effect of concurrent potash manuring. *Bodenk. PflErnähr.* 33, 1943 (196-215). [G.] VII, 3
- 631.83 : 631.811.2**—**Kappen, H.**; **Neuberger, A.**; **Liesegang, H.** Pot and field trials with active potash salts. *Bodenk. PflErnähr.* 33, 1943 (142-159). [G.] VII, 3
- 631.83 : 631.811.6**—**Scharrer, K.**; **Schreiber, R.** Pot experiments with various potash salts with reference to the effects of magnesium and boron. *Bodenk. PflErnähr.* 26, 1942 (129-136). [G.] V, 5
- 631.83 : 631.813**—**Prianishnikov, D. N.**; **Golubev, B. A.** The physiological acidity of potassium salts. *Trudy TSKhA* 5, No. 1, 1940 (9-21). *C.A.* 38 (612). VII, 3
- 631.83 : 631.813**—**Hallsworth, E. G.** Note on the corrosion of steel by fertiliser. *J. Soc. Chem. Indust.* 63, 1944, (95-96).

# BIBLIOGRAPHY OF SOIL SCIENCE

- IV, 4    **631.83 : 631.815—Kirsanov, A. T.** Residual effect of potassium fertilizers and assimilation of non-exchangeable potassium by barley. *Khim. Sotsial. Zemled.* No. 2, 1940 (43-49). *Pedology* No. 10, 1940 (114). [R.]
- VI, 3    **631.83 : 631.815—Kirsanov, A. T.** The utilization of various forms of residual potassium fertilizer by barley and the prognosis of such fertilization. *Trans. Dokuchaev Inst.* 21, 1940 (131-147). *C.A.* 36 (2072). [R.e.]
- VI, 1    **631.83 : 631.84—Baumeister, W.** The effect of increasing and additional applications of potash in presence of varying levels of basal nitrogenous manuring. *Bodenk. PflErnähr.* 28, 1942 (257-275). [G.]
- 631.831—Johnson, R. C.** Use of anthracite ash in building materials and in agriculture. *Trans. 2nd Anthrac. Conf.* 1939 (131-153). *C.A.* 34 (5963).
- 631.831—Ashmore, S.** Potash from rubbish fires. *Gard. Chron.* 112, 1942 (203). *Hort Abs.* 13 (7).
- VII, 4    **631.831—Finn, R. F.** The leaching of some plant nutrients following the burning of forest litter. *Black Rock Forest Pap.* 1, 1943 (128-134). *C.A.* 38 (3068).
- VII, 1    **631.831—Lerner, M.** Fertilizer potash from flue dust—a ferromanganese furnace by-product. *Chem. Trade J.* 113, 1943 (3). *C.A.* 37 (5818).
- IV, 6    **631.831 : 546.27—Middley, A. R. ; Dunklee, D. E.** Synthetic wood ashes require boron. *Better Crops with Plant Food* 25, No. 5, (6-9, 42-44). *C.A.* 35 (4899).
- 631.831 : 631.86—Farming in South Africa.** Effect of karoo-manure ash on soil. *Farm. S. Africa* 17, 1942 (290, 417-418).
- V, 6    **631.831 : 633.51—Mello, P. C. de.** Cottonseed meal ash as fertilizer. *J. Amer. Soc. Agron.* 34, 1942 (677-679).
- V, 4    **631.831 : 633.912—Rubber Research Institute of Malaya.** Potash supplies: smoke house ash and coconut husk ash. *Rubber Res. Inst. Malaya Plant Bull.* No. 15, 1941, pp. 17. *Hort Abs.* 12 (56).
- 631.831 : 634.61—Georgi, C. D. V.** Ash from coconut and oil palm waste products as a substitute potassium fertilizer. *Malay. Agric. J.* 29, 1941 (426-436).
- V, 2    **631.831 : 634.61—Penders, J. M. A.** Coconut husk ash as a fertilizer. *Landbouw* 17, 1941 (179-190). *Hort Abs.* 11 (342). [D.e.]
- V, 2    **631.831 : 634.61—Salgado, M. L. M. ; Chinnarasa, E.** The potash content of coconut husks and husk ash. *Trop. Agrist.* 97, 1941 (68-73).
- VI, 3    **631.839—Fertiliser and Feeding Stuffs Journal.** Potassic flue dust from ferro-manganese furnaces. *Fert. Feed. J.* 29, 1943 (293-294).
- 631.839—Manufacturing Chemist.** Lost! 20,000 tons of potash. *Manuf. Chem.* 14, 1943 (265, 271-274).

## 631.84 NITROGEN FERTILIZERS

**831.84—Morgan, M. F. ; Jacobson, H. G. M.** Soil and crop interrelations of various nitrogenous fertilizers. Windsor lysimeter series B. *Conn. Agric. Expt. Sta. Bull.* 458, 1942 (269-328). *E.S.R.* 87 (774). \*

# FERTILIZERS AND GENERAL AGRONOMY

- 631.84 : 631.84 Pitner, J. Nitrogen sources tested 22 years at Delta Station. *Miss. Farm Res.* 6, No. 6, 1943 (2). E.S.R. 89 (633). VII, 2
- 631.84 : 355.01--Bauer, F. C. Nitrogen problems in the Midwest. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (301-308). Biol. Abs. 17 (2177).
- 631.84 : 355.01--Bear, F. E. Adjusting soil and cropping programs to the nitrogen shortage. Making the most of our nitrogen resources. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (294-298). Biol. Abs. 17 (2170).
- 631.84 : 577.16 Pfützer, G.; Roth, H. The influence of N nutrition on the vitamin B<sub>1</sub> content of grain determined by chemical methods. *ForschDienst. Sonderh.* 12, 1940 (60-68). C.A. 38 (2781). [G.] VII, 4
- 631.84 : 581.144.2 Berkner, F. Tissue-production in plants as roots, stems and leaves and the uptake and distribution of nitrogen within the plant under the influence of increasing applications of nitrogen as shown by some catch-crop plants. *Bodenk. PflErnähr.* 34, 1944 (20-59). [G.] VII, 4
- 631.84 : 581.192 Sveriges Utsädesförenings Tidskrift. Combined variety and nitrogen-manuring trials conducted by the Sveriges Utsädesförening between 1927 and 1939. *Sverig. Utsädesfören. Tidskr.* 50, 1940 (231-262). [Sw.g.]
- 631.84 : 581.192 Glesecke, F.; Schmalfuss, K. The influence of nitrogen manuring on the carbohydrate and protein economy of *Lolium westerwoldicum*. *Bodenk. PflErnähr.* 26, 1942 (195-197). [G.] V, 3
- 631.84 : 631.432.3 Ivanov, V. M. Migration of nitrogen fertilizers in serozems with different methods and times of application. *Ak-Karak. Cent. Agrotech. Sta. Cotton Agrotech. and Agrochem. Problems*, 1939 (71-82). *Pedology* No. 5, 1940 (114). IV, 2
- 631.84 : 631.58--Prince, A. L.; Toth, S. J.; Blair, A. W., et al. Forty-year studies of nitrogen fertilizers. *Soil Sci.* 52, 1941 (247-261). V, 1
- 631.84 : 631.813--Bulgakov, N.; Baranov, M. Biochemical transformation of nitrogenous and phosphatic fertilizers in soil. *Izv. Akad. Nauk Belorus. S.S.R. Otdel. Estestven. Nauk* No. 1, 1940 (47-77). C.A. 38 (1311).
- 631.84 : 631.813 Morgan, M. F.; Jacobson, H. G. M.; Street, O. E. The neutralization of acid-forming nitrogenous fertilizers in relation to nitrogen availability and soil bases. (A report of Windsor lysimeter series D.) *Soil Sci.* 54, 1942 (127-148). C.A. 36 (6737). VI, 1
- 631.84 : 631.816.2--Baumelster, W. The effects of supplementary nitrogen fertilizers given at various times. *ForschDienst.* 9, 1940 (254-266). [G.] IV, 3
- 631.84 : 631.816.2--Bachér, I. Investigations on the effect of time of application on the action of nitrogen-bearing fertilizer materials. *LantbruHögsk. JordbrFörsöksanst. Medd.* No. 6, 1941, pp. 78. C.A. 37 (3218). VII, 2
- 631.84 : 631.816.2--Cornelison, A. H.; Cooper, H. F. Further studies in nitrogen nutrition. Time-of-application-of-nitrogen test. *Hawaii. Plant. Rec.* 45, 1941 (155-178). V, 1



# BIBLIOGRAPHY OF SOIL SCIENCE

- VII, 2     **631.84 : 631.816.2**—Thun, R. Correct application of nitrogen fertilizers in the spring. *Mitt. Landw.* 57, 1942 (48). C.A. 37 (4182).
- VII, 2     **631.84 : 631.816.2**—Selke, W. New possibilities for nitrogen fertilization in the battle of production. *ForschDienst. Sonderh.* 16, 1943 (210-216). C.A. 37 (4514). [G.].
- VII, 4     **631.84 : 631.816.2**—Russell, E. J. Autumn application of nitrogenous fertilizers to cereals. *J. Min. Agric.* 51, 1944 (251-253).
- VI, 2     **631.84 : 631.816.3**—Liubarskaja, L. S. The response of sugar beets to side dressing with nitrogenous fertilizers. *Khim. Selsial. Zemled.* 10, No. 1, 1941 (29-37). C.A. 36 (5941).
- 631.84 : 631.816.3**—Johnston, J. C. The application of nitrogen in irrigation water. *Amer. Fert.* 99, No. 4, 1943 (8-9, 22, 24).
- IV, 1     **631.84 : 631.821.1**—Andrews, W. B.; Cowart, R. The use of the harvested part of the crop in estimating the effect of cotton fertilizers on the base supply of the soil. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (275-280).
- V, 2     **631.841**—Brown, B. E.; Reid, F. R. Note concerning the use of organic salts of ammonia as nitrogen sources in plant-food mixtures. *Amer. Fert.* 95, No. 12, 1941 (12, 20, 22).
- IV, 1     **631.841 : 631.414.3**—Koch, D. E. V. The absorptive capacity of three paddy soils for ammonium fertilizers. *Trop. Agricul.* 94, 1940 (214-225).
- VII, 2     **631.841 : 631.415.1**—Koch, D. E. V. The effect of ammonium sulphate and of ammonium phosphate as nutrients on the lateritic paddy soils of Peradeniya. *Trop. Agricul.* 99, No. 2, 1943 (83-85).
- VI, 2     **631.841.1 : 631.415.3**—Jewitt, T. N. Loss of ammonia from ammonium sulfate applied to alkaline soils. *Soil Sci.* 54, 1942 (401-409).
- VII, 2     **631.841.1 : 631.445.72**—Sreenivasan, A. Nitrogenous manuring of black cotton soil. *Nature* 153, 1944 (55).
- 631.841.1 : 631.812**—Fletcher, C. C.; Merz, A. R.; Brown, B. E. Production and agricultural use of ammonium sulfate. *U.S.D.A. Circ.* 578, 1940, pp. 15. E.S.R. 84 (592).
- 631.841.5**—Teshima, B. White cyanamide. *J. Sci. Soil Japan* 14, 1940 (719-722). [J.]
- IV, 5     **631.841.5**—Cook, H. L.; Scarseth, G. D. The effect of cyanamid and potash when plowed under with organic refuse on the yield of corn and succeeding crops. *J. Amer. Soc. Agron.* 33, 1941 (283-293). *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (284).
- 631.841.5**—Copisarow, M. Certain growth-promoters and fertilisers. II. Calcium cyanamide and manganous sulphate in relation to pasture and moorland improvement. *J. Soc. Chem. Indust.* 62, 1943 (173-175). B.C.A.B. III, 1943 (286).
- VI, 2     **631.841.5 : 619**—Gärtner, H. Diseases resulting from the agricultural use of calcium cyanamide. *Münch. Med. Wochenschr.* II, 1939 (1745). C.A. 36 (3611).
- VII, 3     **631.841.5 : 631.462**—Henderson, R. G. Studies on soil sterilization with urea and calcium cyanamide. *Proc. Assoc. S. Agric. Workers* 43, 1942 (203-204). C.A. 37 (1818).
- 631.841.5 : 631.812**—American Fertilizer. Manufacture and uses of cyanamid. *Amer. Fert.* 94, No. 12, 1941 (10).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.841.5 : 631.813**—**Schmitt, L.** The neutralizing power of lime in cyanamide and its importance for soils poor in lime. *Landw. Jahrb.* 90, 1940 (744-758). *ForschDienst.* 12 (5). [G.] V, 2
- 631.841.5 : 631.813**—**Birdsall, B.** A study of cyanamide decomposition in soils. *Univ. Microfilm Pub.* 313, 1941, pp. 108. *Biol. Abs.* 16 (1230).
- 631.841.5 : 631.813**—**Smith, G. E. ; Heinze, P. H. ; Murneek, A. E.** Effect of soil moisture and rainfall on chemical transformations in cyanamid granules. *Soil Sci.* 55, 1943 (313-320). VI, 3
- 631.841.5 : 632.953**—**Janke, F.** Microbial and fungicidal effects of calcium cyanamide. *Zuckerriihenbau* 24, 1942 (29-40). *C.A.* 37 (4851). VII, 2
- 631.841.6**—**Beling, R. W.** The effect of dicyanodiamide on plant growth. *Bodenk. PflErnähr.* 18, 1940 (331-340). *C.A.* 35 (558). [G.] IV, 3
- 631.841.6**—**Giesecke, F. ; Schmalfuss, K.** The changes undergone by dicyanodiamide in soil and their effect upon plants. *Bodenk. PflErnähr.* 33, 1944 (360-366). [G.] VII, 4
- 631.841.7**—**Tokuoka, M. ; Zyo, S.** The efficacy of urea-type nitrogen fertilizers. IV. Wheat. *J. Soc. Trop. Agric. Taiwan* 11, 1939 (169-173). *C.A.* 34 (5992). IV, 1
- 631.841.7**—**Kappen, H. ; Lichtenberg, P.** The utility as fertilizers of condensation products of cyanamide and urea with aldehydes. *Bodenk. PflErnähr.* 24, 1941 (304-310). [G.] V, 1
- 631.841.7**—**McCool, M. M.** Comparison of agronomic value of the insoluble nitrogen derived from Urea-Ammonia Liquor-37 and other sources. *Boyce Thompson Inst. Contr.* 11, 1941 (393-401). IV, 4
- 631.841.7**—**Merz, A. R. ; Brown, B. E.** Production and fertilizer use of urea. *U.S.D.A. Circ.* 679, 1943, pp. 18.
- 631.841.7 : 631.821.2**—**Nagai, S. ; Miyake, R.** Gypsum-urea or urea-calcium sulphate complex. II. *J. Soc. Chem. Indust. Japan* 43, 1940 (20914). *B.C.A.* 59 (885).
- 631.841.7 : 631.821.2**—**Uno, S.** Studies on the hygroscopicity of chemical fertilizers. I. The hygroscopicity of gypsum-urea,  $4\text{CO}(\text{NH}_2)_2 \cdot \text{CaSO}_4$ . *J. Soc. Chem. Indust. Japan* 43, 1940 (274-275). *C.A.* 35 (2265). IV, 5
- 631.842 : 631.433.2**—**Bain, F. M. ; Chapman, H. D.** Nitrate fertilizer additions to waterlogged soils in relation to oxygen deficiency. *Soil Sci.* 50, 1940 (357-367). *C.A.* 35 (2259). IV, 5
- 631.842.3 : 631.812**—**Archief voor de Suikerindustrie.** Storage of Chilean nitrate. *Arch. Suikerindust.* 1, 1941 (645-648). [Du.] IV, 5
- 631.842.4**—**Brown, B. E.** Ammonium nitrate as a source of nitrogen for potato fertilizers. *Amer. Fert.* 99, No. 5, 1943 (8-9). VII, 1
- 631.842.4**—**Olson, L. C.** Ammonium nitrate as a fertilizer for Georgia soils. *Amer. Fert.* 100, No. 3, 1944 (14). VII, 3
- 631.842.4 : 631.812**—**Nuckolls, A. H.** Fire and explosion hazards of ammonium nitrate fertilizer bases. *Underwriters' Labs., Inc., Bull. Res.* No. 20, 1940, pp. 31. *C.A.* 35 (1635). IV, 4
- 631.842.4 : 631.812**—**American Fertilizer.** The preparation of ammonium nitrate for use as a fertilizer. *Amer. Fert.* 99, No. 7, 1943 (5-8, 22, 26).

# BIBLIOGRAPHY OF SOIL SCIENCE

- VII, 2    **631.842.4 : 631.813**—United States Department of Agriculture. The use of ammonium nitrate in mixed fertilizers. *Amer. Fert.* 99, No. 8, 1943 (5-7, 20, 22, 24); No. 9, 1943 (10-11).
- IV, 6    **631.842.6 : 631.842.3**—Thun, R. The influence of soil and fertilizer nutrients on the relative efficiency of calcium and sodium nitrate. *Bodenk. Pflernähr.* 21 22, 1940 (723-742). *ForschDienst.* 11 (57). [G.]
- IV, 5    **631.847.2**—Panosian, A. K. Application of nitragin in Armenian S.S.R. *Mikrobiologia* 8, 1939 (838-843). C.A. 35 (3024).
- IV, 2    **631.847.2**—Arnold, H. C. Soya bean inoculation by the "muddy-milk" method. *Rhod. Agric. J.* 38, 1940 (614-615).
- IV, 5    **631.847.2**—Riumin, N. Dry nitragin from roots of clover and lupin. *Khm. Sotsial. Zemled.* No. 1, 1940 (62-64). *Herb. Abs.* 11 (104).
- IV, 6    **631.847.2**—Madhok, M. R. Bigger legume yields from inoculated seeds. *Indian Farm.* 2, 1941 (303-307).
- IV, 6    **631.847.2**—Spaulding, M. F. Comparative efficiency of humus and agar as carriers for legume bacteria of soybeans and peanuts. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (259-261).
- IV, 6    **631.847.2**—Steindl, D. R. L. Legume inoculation in Queensland cane-fields: efficiency of strains of nitrogen fixing bacteria. *Queensland Bur. Sug. Expt. Sta. Tech. Commun.* No. 2, 1941 (29-55).
- V, 6    **631.847.2**—Jensen, H. L. Bacterial treatment of non-leguminous seeds as an agricultural practice. *Aust. J. Sci.* 4, 1942 (117-120). R.A.M. 21 (409).
- VII, 1    **631.847.2**—Albrecht, H. R. A method for inoculating small lots of legume seed. *J. Amer. Soc. Agron.* 35, 1943 (914-917).
- IV, 3    **631.847.2**—Swaby, R. J. Inoculation of legume seed. *Agric. Gaz. N.S.W.* 54, 1943 (9-13).
- IV, 3    **631.847.2 : 631.466.1** Kanivets, I. I.; Khariton, E. G.; Tul'chinskaja, E. M. Increased yield of sugar beets, oats and lupins through inoculation of soil by *Trichoderma lignorum*. *Mikrobiologia* 9, 1940 (143-152). C.A. 35 (264). [R e]

## 631.85 PHOSPHORUS FERTILIZERS

- IV, 3    **631.85**—Jacob, K. D.; Ross, W. H. Nutrient value of the phosphorus in defluorinated phosphate, calcium metaphosphate, and other phosphatic materials as determined by growth of plants in pot experiments. *J. Agric. Res.* 61, 1940 (539-560).
- V, 2    **631.85**—Karraker, P. E.; Miller, H. F.; Bortner, C. E., et al. Greenhouse tests of the availability of phosphorus in certain phosphate fertilizers. *Ky. Agric. Expt. Sta. Bull.* 413, 1941 (57-86). E.S.R. 86 (19).
- VI, 3    **631.85**—Odland, T. E.; Cox, T. R. Field experiments with phosphate fertilizers. *R.I. Agric. Expt. Sta. Bull.* 281, 1941, pp. 27, E.S.R. 88 (167).
- VI, 3    **631.85**—Smith, A. M. Availability of phosphates. *Fert. Feed. J.* 26, 1941 (79, 81-82). B.C.A.B. III, 1942 (5).
- VI, 3    **631.85**—Giesecke, F.; Michael, G.; Kuhn, L. Two years' pot experiments for the evaluation of some new phosphatic manures. *Bodenk. Pflernähr.* 26, 1942 (363-374). [G.]

# FERTILIZERS AND GENERAL AGRONOMY

- 631.85—Houghland, G. V. C. ; Clark, K. G. ; Hawkins, A., et al.** Nutrient value of some new phosphatic materials used on potatoes. *Amer. Fert.* 97, No. 7, 1942 (5-8, 24, 26). VI, 1
- 631.85—Noll, C. F. ; Irvin, C. J.** Field test of phosphate fertilizers. *Pa. Agric. Expt. Sta. Bull.* 423, 1942, pp. 14. VI, 1
- 631.85—Roberts, G. ; Freeman, J. F. ; Miller, H.** Field tests of relative effectiveness of different phosphate fertilizers. *Kv. Agric. Expt. Sta. Bull.* 420, 1942, pp. 32. B.C.A.B. III, 1942 (210). E.S.R. 87 (345). VI, 3
- 631.85—Brown, B. E.** An appraisal of different phosphatic material as sources of phosphorus for crop plants: a greenhouse study. *Amer. Fert.* 98, No. 6, 1943 (10-11). VI, 3
- 631.85 : 355.01—Engels, O.** The phosphoric-acid problem and the question of the proper use of phosphoric-acid fertilizers under present conditions. *Düngemarkt* 2, 1940 (81-86). C.A. 36 (4654). VI, 2
- 631.85 : 355.01—Meyer, L.** The importance of the biological factor in maintaining crop yields in spite of the shortage of phosphate fertilizer. *Phosphorsäure* 8-9, 1940 (199-213). C.A. 36 (3895). VI, 2
- 631.85 : 545—Butenko, G. A. ; Kirsh, N. V.** Photocolorimetric determination of phosphoric acid in fertilizers. *Zavod. Lab.* 9, 1940 (555-558). C.A. 34 (7516). IV, 2
- 631.85 : 545—Lederle, P.** A technique for the photometric determination of phosphoric acid in fertilizers. *Ztschr. Anal. Chem.* 121, 1941 (403-411). [G.] IV, 6
- 631.85 : 545—Andrews, W. B.** Discrepancies between the response of cotton to phosphatic materials and their availability as determined by the official method. *J. Assoc. Off. Agric. Chem.* 25, 1942 (498-509). V, 5
- 631.85 : 545—Bilacher, G. S.** Substitution of other solvents for ammonium citrate when determining available phosphoric acid in fertilizers. *Zavod. Lab.* 8, 1943 (409-413). B.C.A.B. III, 1943 (231). VII, 1
- 631.85 : 545—Martens, P.** A two-per-cent citric solution saturated with calcium citrate and its solvent action for phosphate fertilizers. *Ztschr. Anal. Chem.* 125, 1943 (245-256). C.A. 37 (4516). VII, 2
- 631.85 : 546.16—McIntire, W. H. ; Winterberg, S. H. ; Thompson, J. G., et al.** Fluorine content of plants fertilized with phosphates and slags carrying fluorides. *Indust. Engng. Chem.* 34, 1942 (1469-1479). B.C.A.B. III, 1943 (70). VI, 3
- 631.85 : 546.185—Doerell, E. G.** Metaphosphate as a phosphoric-acid fertilizer and its testing in pot experiments. *Forsch.-Dienst. Sonderh.* 15, 1941 (71-82). C.A. 38 (2154). VII, 4
- 631.85 : 546.185—Gilligan, G. M.** The penetration and availability of metaphosphates in soils. *Del. Agric. Expt. Sta. Bull.* 229, 1941, pp. 16. E.S.R. 85 (593). V, 2
- 631.85 : 546.185—Brown, B. E. ; Clark, K. G.** An appraisal of calcium and potassium metaphosphates as sources of phosphorus for crop plants. *Amer. Fert.* 98, No. 5, 1943 (10-11, 24, 26). VI, 3
- 631.85 : 546.185—Alway, F. J. ; Nesom, G. H.** Effectiveness of calcium metaphosphate and fused rock phosphate on alfalfa. *J. Amer. Soc. Agron.* 36, 1944 (73-88). VII, 2

## BIBLIOGRAPHY OF SOIL SCIENCE

- 631.85 : 546.19--Tremearne, T. H. ; Jacob, K. D.** Arsenic in natural phosphates and phosphate fertilizers. *U.S.D.A. Tech. Bull.* 781, 1941, pp. 39.
- IV, 6 **631.85 : 546.284--Themlitz, R.** The action of phosphatic fertilizers on soils of three degrees of richness in calcium carbonate, with reference to the uptake of  $\text{SiO}_2$  by oats. *Bodenk. PflErnähr.* 23, 1941 (71-82). [G.]
- VI, 1 **631.85 : 547.426.1 Scharrer, K. ; Schreiber, R.** The uptake of root-soluble phosphoric acid from calcium glycerophosphate and calcium glucophosphate. *Bodenk. PflErnähr.* 28, 1942 (81-93). [G.]
- VI, 2 **631.85 : 581.192--Schmalfuss, K.** The significance of phosphoric acid in the vegetative organs of plants. *Phosphorsäure* 8-9, 1940 (404-412). C.A. 36 (5939).
- VII, 1 **631.85 : 619--Fraser, H. F. ; Hoppe, T. C. ; Sullivan, J. H., et al.** Phosphate fertilizers as possible sources of phosphorus for animals. *Indust. Engng. Chem.* 35, 1943 (1087-1090).
- IV, 2 **631.85 : 631.414.3 Chirikov, F. V. ; Gusev, E. P.** Assimilation of phosphoric acid by oats from various kinds of soil phosphates. *VU.A.I. No. 23*, 1939 (86-109). *Pedology No. 1*, 1940 (121).
- IV, 2 **631.85 : 631.414.3--Shcheglova, Z. V.** Mobility of phosphoric acid of different phosphates in the soil. *VU.A.I. No. 23*, 1939 (65-85). *Pedology No. 1*, 1940 (120).
- IV, 2 **631.85 : 631.414.3 Uliakov, I.** Fixation of phosphates in different soils and phosphate availability to plants. *VU.A.I. No. 23*, 1939 (3-32). *Pedology No. 1*, 1940 (120).
- VII, 1 **631.85 : 631.414.3 Doak, B. W.** Movement of added phosphate in soil. II. Effect of different phosphatic fertilizers with and without lime on the rate of penetration. *N.Z. J. Sci. Tech.* 24, 1942 (141A-146A).
- VII, 1 **631.85 : 631.414.3 Rogers, H. T.** Losses of surface-applied phosphate and limestone through runoff from pasture land. *Proc. Soil Sci. Soc. Amer.* 1942; 7, 1943 (69-76). *Biol. Abs.* 17 (2183). C.A. 37 (5540).
- VII, 1 **631.85 : 631.414.324 Dixon, J. K. ; Taylor, N. H.** Losses of exchangeable potash and magnesia contents from Waikato soils following continued phosphate top-dressing. *N.Z. J. Sci. Tech.* 24, 1942 (146A-151A).
- IV, 3 **631.85 : 631.415.1 Scharrer, K. ; Schreiber, R.** Neubauer tests on assimilation of phosphoric acid from various fertilizers. *Bodenk. PflErnähr.* 18, 1940 (376-388). C.A. 35 (567). [G.]
- VI, 1 **631.85 : 631.415.3 Scharrer, K. ; Schreiber, R.** Assimilation by seedling plants on alkaline soils of phosphoric acid from various fertilizers. *Bodenk. PflErnähr.* 28, 1942 (93-105). [G.]
- VII, 3 **631.85 : 631.416--Truss, P. S.** Changes in the properties of the soil and increase in the yields of grain under the influence of a prolonged use of phosphates. *Khim. Sotsial. Zemled.* No. 8, 1940 (14-18). C.A. 37 (1550).
- VII, 2 **631.85 : 631.416--Gliesecke, F. ; Michael, G.** The phosphoric acid question as the subject of systematic agricultural chemical research. *ForschDienst. Sonderh.* 16, 1942 (171-176). C.A. 37 (4514).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.85 : 631.416**—**Sell, O. E. ; Olson, L. G.** The effect of surface-applied phosphate and limestone on soil nutrients and pH of permanent pastures. *Proc. Assoc. S. Agric. Workers* 43, 1942 (80-81). C.A. 37 (1821).
- 631.85 : 631.416.2**—**Bushnell, J.** The phosphorus content of a sandy loam containing sufficient available phosphorus for vegetable crops. *Soil Sci.* 51, 1941 (153-158). IV, 3
- 631.85 : 631.416.2**—**Bushnell, J.** The phosphorus level of a Chenango fine sandy loam required by four vegetable crops. *Proc. Amer. Soc. Hort. Sci.* (1940) 38, 1941 (626-628).
- 631.85 : 631.416.2**—**Bushnell, J.** The phosphorus level required by vegetable crops in the Marietta district. *Ohio Veg. Potato Grow. Assoc. Proc.* 26, 1941 (17-19). C.A. 36 (861).
- 631.85 : 631.416.2**—**DeTurk, E. E.** The problem of phosphate fertilizers. Their relation to the phosphate-supplying power of the soil and to the requirements of farm crops. *Ill. Agric. Expt. Sta. Bull.* 484, 1942 (543-583). C.A. 36 (7208). E.S.R. 87 (640).
- 631.85 : 631.416.2**—**Doak, B. W.** Top-dressing of grassland with phosphates. Part 1.—The effect of various phosphatic fertilizers with and without lime on the chemical composition of the soil. *N.Z. J. Sci. Tech.* 24, 1942 (71A-77A). VII, 1
- 631.85 : 631.416.2**—**Jones, G. H. Gethin.** A programme for the continued phosphatic manuring of wheatlands. *E. Afric. Agric. J.* 8, 1943 (159-161). VI, 3
- 631.85 : 631.417.2**—**Kappen, H. ; Schaal, J. ; Krier, A.** Further investigations into the humate solubility of phosphatic fertilizers. *Bodenk. PflErnähr.* 31, 1943 (357-376). [G.] VII, 3
- 631.85 : 631.43**—**Green, J.** Effect of phosphate on the hardness of soil. *Amer. Fert.* 96, No. 4, 1942 (8, 24). E.S.R. 87 (189). VI, 1
- 631.85 : 631.812**—**Jacob, K. D.** New and old methods of processing phosphate. *Amer. Fert.* 93, No. 8, 1940 (7-9, 20, 22); No. 9, 1940 (7-10, 22, 24).
- 631.85 : 631.813**—**Chepelevetsky, M. L.** Physico-chemical investigations of fertilizers. *Nauch. Inst. Udob.* 1919-39 (63-67). C.A. 36 (4264). VI, 3
- 631.85 : 631.813**—**Gerlicke, S.** Phosphates. *Die Chemie* 16, 1943 (149-150, 287-288). C.A. 37 (6397). VII, 1
- 631.85 : 631.813**—**Volk, G. W.** Availability of rock and other phosphate fertilizers as influenced by lime and form of nitrogen fertilizer. *J. Amer. Soc. Agron.* 36, 1944 (46-56). VII, 3
- 631.85 : 631.816.3**—**Aslander, A.** A method of phosphate application. *Kgl. Lantbr.Akad. Tidskr.* 79, 1940 (385-398). [Sw.e.] IV, 3
- 631.85 : 631.816.3**—**Gusev, E. P.** A new method of applying phosphatic fertilizers. *Khim. Sotsial. Zemled.* No. 5, 1940 (43-45). [R.] IV, 6
- 631.85 : 631.816.3**—**Coleman, R.** Phosphate applied in narrow bands for better results. *Miss. Farm Res.* 5, No. 1, 1942 (7). E.S.R. 86 (749). V, 6
- 631.85 : 631.821.1**—**Gerlicke, S.** Investigations on the reactions between phosphoric acid and lime in the soil. *Bodenk. PflErnähr.* 17, 1940 (147-169). C.A. 35 (253). [G.] IV, 3
- 631.85 : 631.821.1**—**Mitscherlich, E. A.** Experiments on the fixation of phosphate in soils. *Bodenk. PflErnähr.* 28, 1942 (76-80). [G.] VI, 1

## BIBLIOGRAPHY OF SOIL SCIENCE

- IV, 5    **631.85 : 632.111**—**Stadelmann**. Practical experience with phosphate manuring of autumn sowings. *Phosphorsäure* 2, 1939 (159-160). *ForschDienst.* 11 (33).
- IV, 1    **631.851**—**Samoilov, I. I.**; **Kutuzov, S. R.** Phosphorite meal for spring crops on slightly podzolized soils. *Trudy LOMUAA* No. 49, 1937 (86-107). *Pedology* No. 8, 1939 (119).
- VI, 3    **631.851**—**Klechkovsky, V. M.**; **Stroeva, V. Ya.** Vivianite as a source of phosphorus for plants. *Gedroiz Inst. Fert. Phosphate Fert.* No. 23, 1939 (33-64). *C.A.* 36 (1724).
- 631.851**—**Jacob, K. D.** Phosphate rock. *Miner. Indust.* 49, 1940 (473-491). *C.A.* 35 (8188).
- V, 2    **631.851**—**Giesecke, F.**; **Michael, G.** The action of rock phosphate on agricultural soils. *Bodenk. PflErnähr.* 25, 1941 (34-36). [G.]
- VII, 4    **631.851**—**Meurice, R.** Estimation of the reactivity of natural phosphates. *Ann. Chim. Anal.* 24, 1942 (214). *C.A.* 38 (3074).
- VII, 2    **631.851**—**Schmitt, L.** Report on the use of ground rock phosphate as fertilizer. *ForschDienst. Sonderh.* 16, 1942 (202-209). *C.A.* 37 (4517).
- 631.851 : 539.215** **Smirnov, N. D.** The degree of fineness of ground phosphorite from different phosphorites. *Trudy Nauch. Inst. Udob.* No. 141, 1938 (216-228). *C.A.* 35 (5238).
- V, 3    **631.851 : 546.13**—**Germanov, A. A.**; **Gadalova, K. I.** Effectiveness of chlorinating phosphorite and apatite in admixture with peat. *Khim. Sotsial. Zemel.* No. 5, 1941 (34-39). [R.]
- VII, 4    **631.851 : 546.16**—**MacIntire, W. H.**; **Winterberg, S. H.**; **Hatcher, B. W.**, et al. Fused tricalcium phosphate: relation of degree of defluorination to fertilizer value of quenched fusions of rock phosphate. *Soil Sci.* 57, 1944 (425-442).
- IV, 2    **631.851 : 549** **Bale, W. F.** A comparative Röntgen-ray diffraction study of several natural apatites and the apatite-like constituent of bone and tooth substance. *Amer. J. Röntgenol.* 43, 1940 (735-747). *C.A.* 34 (6868).
- VII, 2    **631.851 : 549**—**Frondehl, C.** Mineralogy of the calcium phosphates in insular phosphate rock. *Amer. Miner.* 28, 1943 (215-232). *C.A.* 37 (3025).
- VI, 3    **631.851 : 631.445.2** **Koshel'kov, P. N.** Raw phosphate rock as an ameliorative agent for podzol loam soils. *Pedology* No. 9, 1940 (45-51). *C.A.* 35 (6721). [R &]
- IV, 6    **631.851 : 631.445.6** **Golubev, B. A.**; **Beriya, N. T.** The use of phosphorite meal on red soils. *Khim. Sotsial. Zemel.* No. 10, 1940 (7-12). [R]
- IV, 6    **631.851 : 631.811.2** **Dickman, S. R.**; **DeTurk, E. E.** Response of young corn plants to inorganic phosphates differing in solubility: I. The effect of phosphorus absorption from rock phosphate on the composition and dry weight of corn at three growing stages. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (213-219).
- VI, 2    **631.851 : 631.812**—**Stremovsky, L. I.** Enriching agricultural ores. *Nauch. Inst. Udob.* 1919-39 (33-37). *C.A.* 36 (3895).
- VI, 3    **631.851 : 631.83**—**Golubev, B. A.**; **Andreeva, Z. F.** The simultaneous application of phosphorite flour and potassium salts. *Gedroiz Inst. Fert. Phosphate Fert.* No. 23, 1939 (110-124). *C.A.* 36 (1721).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.851 : 631.83—Samoilov, I. I.** Method of increasing the effectiveness of phosphorite meal. *Dokl. Akad. S.-Kh. Nauk* No. 8, 1941 (41-46). [R.] V, 2
- 631.851 : 631.853—Chirikov, F. V.** The agrochemical characteristics of the L. A. Chernikov phosphate slags. *Dokl. Akad. S.-Kh. Nauk* No. 11, 1939 (31-34). C.A. 35 (566). IV, 3
- 631.851 : 631.853—Samoilov, I. I.** Comparative investigations of the L. A. Chernikov phosphate slags as fertilizers on podzolized soils. *Khim. Sotsial. Zemled.* No. 9, 1940 (31-37). [R.] IV, 6
- 631.851 : 631.855—Melnikov, A.** Effect of superphosphate neutralized with phosphorite meal and of Chernikov phosphate on the yield of grain with and without irrigation. *Khim. Sotsial. Zemled.* No. 9, 1939 (66-68). C.A. 35 (6378). VI, 3
- 631.851 : 631.855—Plavsky, G. E.** The effectiveness of phosphorite in beet-crop rotations. *Sreklovich. Polerodstro* No. 9, 1940 (31-32). C.A. 37 (3543). VII, 2
- 631.851 : 631.855—Lee, C.-K.** Effect of the solubility of phosphate fertilizer on the growth of maize in a yellow earth. *Natl. Geol. Surv. China Spec. Soils Pub.* 4, 1941 (26-30). [E.] IV, 6
- 631.851 : 631.855—Garola, J.** Phosphate fertilizing in Beauce. *C. R. Acad. Agric.* 28, 1942 (478-481). C.A. 38 (2782). VII, 4
- 631.851 : 631.855—MacIntire, W. H.; Hardin, L. J.** The stability of admixed rock phosphate in cured concentrated superphosphate. *J. Assoc. Off. Agric. Chem.* 25, 1942 (168-176). V, 3
- 631.851 : 631.855—Preller, G. S.** Recent developments in phosphatic fertilizers. *S. Afric. Mining Eng. J.* 54, 1943 (3-5). C.A. 38 (3407). VII, 4
- 631.851 : 631.855—Journal of the Department of Agriculture of South Australia.** What is 50-50 superphosphate? *J. Dept. Agric. S. Aust.* 47, 1944 (421).
- 631.852—Schmitt, L.** The action and after-effects of bone meal in relation to the lime status of the soil. *Bodenk. PflErnähr.* 18, 1940 (370-376). C.A. 35 (557). [G.] IV, 3
- 631.852 : 631.853—Peuser, H.** The solubility of the phosphoric acid in bone meal as compared to that of basic slag. *Düngermarkt* 2, 1940 (38-40). C.A. 36 (4959). VI, 2
- 631.853—Gericke, S.** New investigations into the manurial action of basic slag. *Phosphorsäure* 2, 1939 (126-137). *ForschDienst.* 11 (74). IV, 5
- 631.853—Köttgen, P.** Investigations on the decomposability of phosphates by the method of electro-ultrafiltration. *Phosphorsäure* 2, 1939 (113-125). *ForschDienst.* 11 (32). IV, 5
- 631.853—Gericke, S.** Experiments with extra high rates of fertilizer application. *Bodenk. PflErnähr.* 28, 1942 (276-290). [G.] VI, 1
- 631.853 : 546.711—Gericke, S.** The effect of the manganese in basic slag. *Bodenk. PflErnähr.* 19, 1940 (187-200). *Mezög. Kutat.* 13 (243). [G.] IV, 3
- 631.853 : 631.414.3—Bruin, P.; Have, J. ten.** The influence of ground basic slag or calcium carbonate on the pH value and degree of saturation (I' value) of an acid organic sandy soil. The influence of water-soluble P<sub>2</sub>O<sub>5</sub> on the correlation between the pH value and the I' value of organic sandy soils. *Verst. Rijkslandb.Proefsta. Groningen* 47A, 1941 (1025-1029). C.A. 38 (3068). VII, 4



## BIBLIOGRAPHY OF SOIL SCIENCE

- VI, 3    **631.853 : 631.812**—Lathe, F. E. The utilisation of phosphatic open-hearth slag. Part I. Effect of rapid cooling on the solubility of phosphoric acid. *J. Soc. Chem. Indust.* 62, 1943 (24-28). B.C.A.B. III, 1943 (70).
- VI, 3    **631.853 : 855**—Wright, L. E.; Leahey, A.; Turner, R. C. The utilisation of phosphatic open-hearth slag. Part II. The availability of phosphoric acid as measured by yield and phosphorus recovery in barley and clover. *J. Soc. Chem. Indust.* 62, 1943 (28-31).
- VII, 3    **631.854** Gamarra Dulanto, L. Investigations of the loss of nitrogen from guanos. *Bol. Comp. Admin. Guano* 18, 1942 (283-297). C.A. 38 (10651).
- 631.854** Tappy, E. P. Peruvian guano. *Foreign Agric.* 7, 1943 (185-192).
- IV, 5    **631.854 : 545** Pozzi-Escot, E. Absolute method for the determination of humidity in guano. *Rev. Cienc. Peru* 42, 1940 (785-790). C.A. 35 (3753).
- IV, 6    **631.854 : 599.4** Hardon, H. J.; Nijholt, J. A. The composition of Netherlands East Indies guanos, oilcakes and oilcake ashes. *Econ. Weekl.* 10, No. 15. *Boecultures* 15, 1941 (687-692). [Du.]
- 631.854 : 599.4** Babe, E. Bat guano. *Agronomia Cuba* 10, 1943 (165-168). C.A. 38 (10651).
- 631.855**—Ellfott, I. L. The importance of superphosphate. Method of combating disadvantages on acid soils. *N.Z. J. Agric.* 62, 1941 (71-73).
- IV, 4    **631.855**—Franck, O. Recent experience with phosphate fertilizer. *Amer. Fert.* 94, No. 3, 1941 (9-11, 26); No. 4 (9-11, 20, 22). C.A. 35 (2659).
- V, 4    **631.855**—Brown, B. E.; Jacob, K. D.; Reid, F. R. Plant culture and nitrification studies with sludge-acid superphosphate. *Amer. Fert.* 96, No. 7, 1942 (5-6, 24, 26).
- VII, 3    **631.855**—Jacob, K. D.; Armiger, W. H. Field experiments with alkylaton-acid superphosphate. *J. Amer. Soc. Agron.* 36, 1944 (281-286).
- 631.855**—Miller, E. V.; Jacob, K. D. Agronomic value of alkylaton-acid superphosphate as indicated by greenhouse and laboratory experiments. *J. Amer. Soc. Agron.* 36, 1944 (274-280).
- V, 4    **631.855 : 552.332.5**—Birrell, K. S. Basalt scoria as a reverting material for superphosphate. *N.Z. J. Sci. Tech.* 23, 1941 (1B-9B).
- V, 3    **631.855 : 631.445.4**—Strelnikova, M. M. The reaction of superphosphate with soil and the availability of phosphoric acid. *Khm. Sotsial. Zemled.* No. 5, 1941 (22-29). [R.]
- IV, 3    **631.855 : 631.445.5**—Rubinchik, Yu. A. Reversion of superphosphate in serozems. *Dokl. Akad. S.-Kh. Nauk* No. 17, 1940 (20-22). [R.]
- VII, 4    **631.855 : 631.453**—Rader, L. F., Jr.; Reynolds, D. S.; Jacob, K. D. Effect of picric acid in superphosphate on tomatoes and beans as indicated by greenhouse experiments. *J. Amer. Soc. Agron.* 36, 1944 (544-551).
- IV, 2    **631.855 : 631.812**—Marshall, H. L.; Hendricks, S. B.; Hill, W. L. Composition and properties of superphosphate. *Indust. Engng. Chem.* 32, 1940 (1631-1636).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.855 : 631.812**—**Marshall, H. L. ; Hill, W. L.** Composition and properties of superphosphates. *Indust. Engng. Chem.* 32, 1940 (1128-1135). IV, 1
- 631.855 : 631.812** **Marshall, H. L. ; Hill, W. L.** Composition and properties of superphosphate. Effect of degree of acidulation on the curing processes. *Indust. Engng. Chem.* 32, 1940 (1224-1232). C.A. 34 (7516). IV, 2
- 631.855 : 631.812**—**Brown, B. E. ; Campbell, J. C. ; Hawkins, A., et al.** An evaluation of sludge-acid and alkylation-acid superphosphates as sources of phosphorus in potato fertilizers. *Amer. Potato J.* 20, 1943 (89-95). C.A. 37 (3543). VII, 2
- 631.855 : 631.812**—**Teakle, L. J. H. ; Hill, H. E.** The rotting of superphosphate bags. *J. Dept. Agric. W. Aust.* 20, 1943 (138-141). VII, 2
- 631.855 : 631.812**—**Ehrenberg, P. ; Kuhn, M. L.** Investigations comparing the behaviour of ordinary and granulated superphosphate during storage. *Bodenk. Pflernähr.* 33, 1944 (366-376). [G.] VII, 4
- 631.855 : 631.816.2**—**Stewart, A. B. ; Williams, E. G.** Time of application of fertilisers with special reference to superphosphate. *Sci. J. Agric.* 24, 1942 (52-56). C.A. 36 (7209). VI, 2
- 631.855 : 631.816.2** **Meadly, G. R. W.** Subterranean clover seed. The influence of superphosphate on germination. *J. Dept. Agric. W. Aust.* 20, 1943 (53-58). VI, 4
- 631.855 : 631.816.2** **Whittet, J. N.** Superphosphate affects the germination of white mustard seed. *Agric. Gaz. N.S.W.* 54, 1943 (43). VI, 3
- 631.855 : 631.821.1** **MacIntire, W. H.** A new explanation of what happens to superphosphate in limed soils. *Tenn. Agric. Expt. Sta. Bull.* 176, 1941, pp. 16. E.S.R. 85 (593). V, 2
- 631.855 : 631.821.1**—**MacIntire, W. H. ; Hatcher, B. W.** Evidence in support of a new concept as to the end product of superphosphate in limed soils. *Soil Sci.* 53, 1942 (43-54). V, 3
- 631.855 : 631.821.1**—**Burvill, G. H. ; Cariss, H. G.** Experiments on the effect of adding ground limestone and slaked lime to the superphosphate used for wheat growing. *J. Dept. Agric. W. Aust.* 20, 1943 (142-155). VII, 2
- 631.855 : 631.851**—**Nagelschmidt, G. ; Nixon, H. L.** Formation of apatite from superphosphate in the soil. *Nature* 154, 1944 (428-429). VII, 4
- 631.855 : 631.859.42**—**Elliott, A. G. ; Lynch, P. B.** Serpentine superphosphate: recommendations for use of the new mixture. *N.Z. J. Agric.* 63, 1941 (177-179, 181-183, 184). V, 1
- 631.855 : 631.859.42**—**Andrew, R. L.** Reversion of calcium superphosphate by serpentine. *N.Z. J. Sci. Tech.* 23, 1942 (208B-209B). VI, 4
- 631.855 : 631.859.42**—**Askew, H. O.** The course of the reactions occurring between serpentine and superphosphate. *N.Z. J. Sci. Tech.* 24, 1942 (128B-134B). VII, 1
- 631.855 : 631.859.42**—**Askew, H. O. ; Stanton, D. J.** Local preparation of serpentine superphosphate. *N.Z. J. Sci. Tech.* 24, 1942 (79B-85B). VII, 1
- 631.855 : 631.859.42**—**Holford, G. H.** Characteristics of serpentine super. *N.Z. J. Agric.* 66, 1943 (11-13). VI, 2

## BIBLIOGRAPHY OF SOIL SCIENCE

- VII, 4 **631.855 : 631.859.42**--Elliott, A. G. Serpentine superphosphate. Results from field experiments. *N.Z. J. Agric.* 69, 1944 (27-29).
- VII, 2 **631.855 : 631.86**--Sernergel, K. I. The value of colloidal humus substances of manure in increasing the effectiveness of superphosphate on gray semi-desert soils. *Khim. Sotsial. Zemled.* 10, No. 3, 1941 (21-23). C.A. 37 (494).
- VII, 4 **631.856**--MacIntire, W. H. ; Winterberg, S. H. ; Marshall, H. L., et al. Industrial precipitated tricalcium phosphates. *Indust. Engng. Chem.* 36, 1944 (547-552).
- V, 3 **631.856 : 631.855**--Maltseeva, I. M. The effect of precipitated phosphate and neutral superphosphate on the yield of the cotton plant. *Khim. Sotsial. Zemled.* No. 5, 1941 (30-33). [R.]
- V, 1 **631.858**--Giesecke, F. ; Michael, G. A two-year pot experiment to evaluate Röchling phosphate as phosphatic fertilizer. *Bodenk. PflErnähr.* 19, 1940 (324-331). *Mezög. Kutat.* 14 (70). [G.]
- 631.858**--Michael, G. Preliminary trials with Röchling phosphate. *ForschDienst.* 10, 1940 (232-236). [G.]
- 631.858**--Nieschlag, F. Results of two pot experiments with Röchling phosphate. *Bodenk. PflErnähr.* 19, 1940 (331-337). *Mezög. Kutat.* 13 (275). C.A. 36 (5940). [G.]
- IV, 6 **631.858**--Schmitt, L. Researches on immediate and residual manurial effects of Röchling phosphate. *Bodenk. PflErnähr.* 19, 1940 (316-324). C.A. 36 (5940). *Mezög. Kutat.* 14 (70). [G.]
- 631.858**--Schmitt, L. The actions and residual effects of the newer phosphates. Second communication. *Bodenk. PflErnähr.* 26, 1942 (375-386). [G.]
- 631.858**--Blanck, E. ; Bocht, B. Pot experiments with Uniwapophosphate. *Bodenk. PflErnähr.* 32, 1943 (95-100). [G.]
- VII, 3 **631.858**--Giesecke, F. ; Michael, G. ; Kuhn, L. The effect of Uniwapophosphate with special reference to the course of uptake of phosphoric acid from various phosphatic fertilizers. *Bodenk. PflErnähr.* 32, 1943 (86-94). [G.]
- VII, 3 **631.858**--Thun, R. Pot experiments with Uniwapophosphate. *Bodenk. PflErnähr.* 32, 1943 (100-105). [G.]
- VII, 3 **631.858**--Schmitt, L. The immediate and residual effects of new phosphates. Third communication. *Bodenk. PflErnähr.* 33, 1944 (275-285). [G.]
- VI, 2 **631.858 : 546.284**--Michael, G. The effect of silica in Röchling phosphate. *Bodenk. PflErnähr.* 19, 1940 (338-346). C.A. 36 (5940). [G.]
- IV, 2 **631.858 : 631.841.1**--Nitsche, H. The compatibility of Rhenania phosphate and sulphate of ammonia. *ForschDienst.* 9, 1940 (171-175). *Mezög. Kutat.* 13 (154). [G.]
- VI, 1 **631.859 : 631.851**--Volk, G. W. Waste pond phosphate compared with rock phosphate and superphosphate as a fertilizer. *J. Amer. Soc. Agron.* 34, 1942 (823-829).
- IV, 5 **631.859.1**--Paauw, F. van der. Comparison of the values of the ammonium phosphates as phosphorus fertilizers. *Versl. Rijkslandb.Proefsta. Groningen* 46A, 1940 (111-217). C.A. 35 (1567).
- 631.859.1**--Jones, R. M. ; Rohner, L. V. Availability of phosphates in ammoniated phosphates ; laboratory versus crop--a review. *J. Assoc. Off. Agric. Chem.* 25, 1942 (195-205).

## FERTILIZERS AND GENERAL AGRONOMY

- 631.859.1—Lüdecke, H. ; Sammet, K.** Pot experiments with half-ammoniated superphosphate. *Bodenk. PflErnähr.* 26, 1942 (386-389). [G.]
- 631.859.1—Thun, R.** Exploratory trials with an ammoniated superphosphate. *Bodenk. PflErnähr.* 26, 1942 (389-394). [G.] V, 4
- 631.859.1—Bykov, M. M.** Synthesis of ammonium phosphates from ferroferriphosphates. *C.R. Acad. Sci. (U.S.S.R.)* 40, 1943 (66-69). [E.]
- 631.859.1 : 545—Timofeiu, K.** Formaldehyde method of determining ammonia-nitrogen in mixed fertilizers and ammoniated superphosphate. *Zavod. Lab.* 8, 1939 (101-102). B.C.A.B. III, 1943 (199). VII, 1
- 631.859.1 : 631.813—Holmes, J. B. S.** Composition of ammoniated superphosphate. *Amer. Fert.* 95, No. 9, 1941 (5-7, 22).
- 631.859.1 : 631.813—Harvey, E. W. ; Rohner, L. V.** Chemical properties of various commercial superphosphates before and after ammoniation. *Amer. Fert.* 97, No. 8, 1942 (5-6, 24, 26).
- 631.859.1 : 631.813—Hardesty, J. O. ; Ross, W. H. ; Adams, J. R.** Factors affecting the availability of ammoniated superphosphates. 1. *J. Assoc. Off. Agric. Chem.* 26, 1943 (203-211). B.C.A.B. III, 1943 (231). VII, 1

## 631.86 7 ANIMAL AND VEGETABLE MANURES

- 631.86 7—Pickett, B.** The effect of manures on plant growth on Wichita Valley soils. *Proc. Amer. Soc. Hort. Sci.* (1939) 37, 1940 (345-348). C.A. 34 (7513)
- 631.86 7—Sauerlandt, W.** Investigation and evaluation of organic manures. The mathematical evaluation of humus fertilizer experiments. *Bodenk. PflErnähr.* 18, 1940 (214-228). C.A. 35 (257). [G.] IV, 3
- 631.86 7—Swaby, R. J.** Stimulation of plant growth by organic matter. *J. Aust. Inst. Agric. Sci.* 8, 1942 (156-163). C.A. 37 (2117). Biol. Abs. 17 (2427). VII, 2
- 631.86 7—Theron, J. J.** Value of organic material in soil fertilization. *Farm. S. Africa* 18, 1943 (618-620). VII, 3
- 631.86 7 : 631.417.4—Rubins, E. J. ; Bear, F. E.** Carbon-nitrogen ratios in organic fertilizer materials in relation to the availability of their nitrogen. *Soil Sci.* 54, 1942 (411-423). *Amer. Fert.* 98, No. 6, 1943 (5-7, 22, 24, 26) ; No. 7, 1943 (8-9, 24, 26). VI, 2
- 631.86 7 : 631.42—Sauerlandt, W.** The investigation of humous manures by means of pot and field trials. *ForschDienst. Sonderh.* 17, 1941 (86-95). [G.]
- 631.86 7 : 631.81—Schuphan, W. ; Dost, H. F. ; Schotola, H.** A critical examination from the points of view of medicine and agricultural chemistry of the question of the value of the application of farmyard manure to vegetable crops. *Ernährung* 5, 1940 (29- ). *Mezög. Kutat.* 13 (187). IV, 2
- 631.86 7 : 631.81—Shcherba, S. V.** Reasons for the difference in efficiency of manure and fertilizers in Danish and in U.S.S.R. experiments. *Khim. Sotsial. Zemled.* No. 2, 1940 (18-23). *Pedology* No. 10, 1940 (119). IV, 4

## BIBLIOGRAPHY OF SOIL SCIENCE

- IV, 4    **631.86 7 : 631.81**—Ingham, G. Organic manures, composts and artificial fertilizers. *S. Afric. Sug. J.* 25, 1941 (187, 189, 191, 193).
- VII, 4    **631.86 7 : 631.81**—Weigert, J. Results of long-continued trials with organic materials. *ForschDienst. Sonderh.* 17, 1941 (75-83). [G.]
- IV, 4    **631.86 7 : 631.81**—Wood, R. C.; Hardy, F. The College permanent manurial experiment. *Trop. Agric. Trin.* 18, 1941 (48-61).
- VII, 1    **631.86 7 : 631.81**—Steven, A. Are organic and artificial manures in conflict? *ForschDienst.* 15, 1943 (12-60). [G.]
- VI, 4    **631.86 7 : 631.811**—Poulsen, J. F. Investigations with farmyard manure. *Nord. JordbrForsk.* 24, 1942 (125-139). [Da.]
- 631.86 7 : 631.812**—Logvinova, Z. V. Organic fertilizers. *Nauch. Inst. Udob.* 1919-39 (110-112). C.A. 36 (4264).
- VII, 4    **631.86 7 : 631.812**—Junghänel, R. The most suitable temperature of rotting in the manure pile. *ForschDienst. Sonderh.* 17, 1941 (103-109). [G.]
- 631.86 7 : 631.812**—Matthews, R. B. Handling compost on farms. *Fert. Feed. J.* 29, 1943 (327, 329-330).
- 631.86**—Meijer, C. Experiments with stable manure on Plot 5 of the experimental farm at Borgercompny (old dale soil with 11% humus), Netherlands, covering a period of 15 years. *Ford. Rykslandb.Proc.sta. Groningen* 46 (A), 1940 (449-503). C.A. 35 (3380).
- IV, 6    **631.86**—Blake, G. A. No quota on farmyard manure. *N.Z. J. Agric.* 63, 1941 (21-25).
- 631.86**—Diekmann, J. The importance of organic manuring for the maintenance and improvement of soil fertility, seen from the standpoint of agricultural research. *ForschDienst.* 12, 1941 (543-553). [G.]
- 631.86**—Dunn, L. E.; Wheeting, L. C. Utilization of barnyard manure for Washington soils. *Wash. Agric. Expt. Sta. Bull.* 395, 1941, pp. 19.
- 631.86**—Cullity, M. Farm manure. *J. Dept. Agric. W. Aust.* 19, 1942 (81-84).
- V, 5    **631.86**—de Villiers, J. I. Precautions in the use of karroo manure. *Farm. S. Africa* 17, 1942 (305-309).
- 631.86**—Smith, G. E. The value of farm manure. *Missouri Agric. Expt. Sta. Circ.* 248, 1943, pp. 11. Biol. Abs. 18 (788).
- VI, 2    **631.86 : 547.414.8**—Kudzin, Y. K. Partial sterilization of manure for the prevention of losses of nitrogen and phosphorus during storage. *Gedroz. Inst. Fert. Use of Disinfectants for Increasing Yield*; 1939 (113-125). C.A. 36 (6740).
- IV, 6    **631.86 : 577.15.04**—Küthy, A. von; Pecznik, J. Does humic acid affect the development of plant roots by means of a hormonal action or by raising the permeability? *Bodenk. Pflernähr.* 23, 1941 (83-90). [G.]
- VI, 3    **631.86 : 631.416**—Themlitz, R. The influence of farmyard manure on the maintenance of the nutrient supply of the soil. *Landw. Jahrb.* 89, 1940 (772-776). C.A. 36 (3896).
- V, 3    **631.86 : 631.416**—Truss, P. S. Improvement of the soil's cultural state by manuring. *Pedology* No. 6, 1941 (38-48). [R.]

# FERTILIZERS AND GENERAL AGRONOMY

- 631.86 : 631.416.2—Rauterberg, E.** The effects of farmyard manure on soil, with special reference to the phosphoric acid in the manure. *ForschDienst.* 10, 1940 (128-138). [G.] IV, 3
- 631.86 : 631.416.2—Gerick, S.** The effect and performance of the phosphoric acid of farmyard manure. *Bodenk. PflErnähr.* 31, 1943 (138-184). C.A. 38 (3072). [G.] VII, 4
- 631.86 : 631.417—Siegel, O.** Can humus be increased by adding stable manure? *ForschDienst. Sonderh.* 17, 1941 (119-125). [G.] VII, 3
- 631.86 : 631.432.2—Havis, L.** Effect of different soil treatments on available moisture capacity of a vegetable soil. *Proc. Amer. Soc. Hort. Sci.* 42, 1943 (497-501). VII, 1
- 631.86 : 631.461.1.3—Bengtsson, N.; Barthel, C.** The decomposition of the organic compounds in barnyard manure. *LantbrHögsk. Ann.* 8, 1940 (55-69). E.S.R. 84 (590). IV, 6
- 631.86 : 631.461.1.3—Maiwald, K.** The subsequent rotting of farmyard manure in the soil. *Bodenk. PflErnähr.* 29, 1943 (140-162). [G.] VI, 4
- 631.86 : 631.81—Iversen, K.; Dorph-Petersen, K.** The nitrogen, phosphorus and potash action of manure and artificial fertilizer. *Tidsskr. Planteavl* 47, 1942 (1-93). C.A. 38 (3771). VII, 4
- 631.86 : 631.811.2—Gerick, S.** Is the phosphoric acid of farmyard dung especially available? *ForschDienst.* 16, 1943 (283-291). [G.] VII, 3
- 631.86 : 631.812—Mirskova, O. N.** Agrochemical properties of old decomposed farmyard manure and its capacity for promoting high yields. *Sborn. Rab. Cheljabinsk. S.-Kh. Opyt. Sta.* 1, 1939 (211-222). [R.] V, 2
- 631.86 : 631.812—Romashkevich, I. F.** Losses of nitrogen on adding liquid manure to the soil. *Khim. Sotsial. Zemled.* No. 10-11, 1939 (50-54). C.A. 36 (2981). VI, 3
- 631.86 : 631.812—Küthy, A. von.** Contributions to the problem of storage of farmyard manure. *Bodenk. PflErnähr.* 19, 1940 (218-247). Zbl. Bakt. 11, 103 (364). [G.] IV, 6
- 631.86 : 631.812—Romashkevich, I.** A study of different methods of preparing manure. *Khim. Sotsial. Zemled.* No. 2, 1940 (85-91). Pedology No. 10, 1940 (119). IV, 4
- 631.86 : 631.812—Romashkevich, I.** The effect of litter and phosphates on the loss of nitrogen and dry matter from manure under different conditions of storage. *Khim. Sotsial. Zemled.* No. 5, 1940 (10-18). [R.] IV, 6
- 631.86 : 631.812—Siegel, O.** Investigations on the storage and action of stable manure. VI. The humus bodies in stable manure and their determination, importance and development during rotting. *Bodenk. PflErnähr.* 18, 1940 (168-214). C.A. 35 (257). [G.] IV, 3
- 631.86 : 631.812—Skriabin, F. A.; Kozlova, T. A.** The summer storage of manure. *Khim. Sotsial. Zemled.* No. 7, 1940 (61-63). [R.] IV, 6
- 631.86 : 631.812—Torstensson, G.; Engström, S.** Care and storage of farmyard manures in the Uppsala region. *Kgl. LantbrAkad. Tidsskr.* 79, 1940 (373-384). [Sw.g.]

## BIBLIOGRAPHY OF SOIL SCIENCE

- VII, 1    **631.86 : 631.812** Hulpot, N. ; Gheorghe, C. Manure fermentation. *An. Acad. Rom.* 17, No. 3, 1941 (1-31). C.A. 37 (5819).
- VII, 3    **631.86 : 631.812** Maiwald, K. Decomposition and temperature increase in rotting stable manures. *ForschBerst. Sonderh.* 17, 1941 (85-103). [G.]
- V, 2    **631.86 : 631.812** Tobey, E. R. ; Plummer, B. E., Jr. ; Fink, D. S. The conservation of ammonia in manure. *Me. Agric. Expt. Sta. Bull.* 400, 1941 (215-217). E.S.R. 85 (593).
- 631.86 : 631.812** Cullity, M. Farm manure. *J. Dept. Agric. W. Aust.* 19, 1942 (194-196).
- V, 5    **631.86 : 631.812** Hewitt, A. G. T. Farmyard manure and soil fertility. *J. Dept. Agric. Victoria* 40, 1942 (164-170).
- V, 5    **631.86 : 631.812** Siegel, O. Long-continued field experiments on the manurial value of various kinds of farmyard manure (Investigations of storage and action of farmyard manure. Part VII.) *Bodenk. Pflernach.* 27, 1942 (267-288). [G.]
- VII, 4    **631.86 : 631.812** Bucher, R. Preparation of stable manure and of extra straw compost with different amounts of straw litter. *Bodenk. Pflernach.* 31, 1943 (63-84). C.A. 38 (2783). [G.]
- 631.86 : 631.812** Tyner, E. H. Manure, a wartime fertilizer. *W. Va. Agric. Expt. Sta. Circ.* H.S. 13, 1943, pp. 8. E.S.R. 89 (522).
- IV, 5    **631.86 : 631.821.1** Midgley, A. R. ; Mueller, W. O. Effect of lime on the nitrogen content of cow manure. *Ut. Agric. Expt. Sta. Bull.* 456, 1940, pp. 20.
- VII, 3    **631.86 : 632.7** Dawson, E. S. Manure disposal and fly control. *Farm. S. Africa* 18, 1943 (691-696).
- VII, 1    **631.86 : 632.7 : 546.27** Midgley, A. R. ; Mueller, W. O. ; Dunklee, D. E. Borax and boric acid for control of flies in manure. *J. Amer. Soc. Agron.* 35, 1943 (779-785).
- 631.86 : 636.3** Taylor, A. J. Sheep-kiald manure. *Farm. S. Africa* 16, 1941 (55-56).
- 631.86 : 636.5** Smith, A. L. Value of poultry manure. *Fert. Feod. J.* 28, 1942 (102-103). B.C.A.B. III, 1942 (253).
- 631.86 : 636.5** Wilcock, B. ; Culpin, C. Poultry manure. *Worce. Agric. Chron.* 11, 1942 (31-37).
- VI, 4    **631.86 : 636.5** Klein, G. T. Poultry manure source of nitrogen. *Better Crops with Plant Food* 27, No. 5, 1943 (16-18, 45-46).
- VII, 3    **631.86 : 636.5** Yushok, W. ; Bear, F. E. Poultry manure—its preservation, deodorization, and disinfection. *N. J. Agric. Expt. Sta. Bull.* 1943, 707, pp. 11. E.S.R. 90 (455).
- 631.862** Blake, G. A. Liquid manure: the fertiliser value of cowshed washings. *N.Z. J. Agric.* 65, 1942 (257-259).
- IV, 3    **631.862 : 631.812** Schattner, M. The effects of various additions, in particular of superphosphate, on retention of nitrogen in liquid manure and on its utilization by plants. *Bodenk. Pflernach.* 18, 1940 (229-256). C.A. 35 (257). [G.]
- 631.862 : 631.812** Blake, G. A. Liquid manure as a money-maker. *N.Z. J. Agric.* 63, 1941 (105-107).
- VII, 4    **631.862 : 631.812** Hansen, F. Investigations on the mineralization of nitrogen in urine and excrements. *Tidskr. Plantavl.* 45, 1941 (401-419). C.A. 38 (2157).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.862 : 631.812**—Hopkins, J. M. How liquid manure has assisted carrying capacity and sward improvement. *N.Z. J. Agric.* 63, 1941 (477-479).
- 631.862 : 631.812** Virri, T. J. Investigations on farmyard manure. 1. Nitrogen losses due to evaporation of ammonia. *Valt. Maatalousk. Julk.* No. 116, 1941, pp. 113. *ForschDienst* 15 (13).
- 631.862 : 631.816.3** Blake, G. A. Liquid manure, installation of sumps, by-passes and distributors. *N.Z. J. Agric.* 64, 1942 (95-98).
- 631.862 : 633.2.03** Syme, P. S. Liquid manure on gumland. *N.Z. J. Agric.* 66, 1943 (7-10).
- 631.863**—Acharya, C. N. The hot fermentation process for composting town refuse and other waste material. IV. The hot fermentation vs. poudrette methods for the disposal of nightsoil. *Indian J. Agric. Sci.* 10, 1940 (473-488).
- 631.863** Richardson, H. L.; Wang, Y. Observations on the use of nightsoil as a manure in Szechwan. *W. China Border Res. Soc. J.* 13, 1941 (46-59). [E.]
- 631.863** Scharff, J. W. Safe employment of nightsoil in agriculture. *Farm Week. S. Africa* 60, 1941 (1204-1205).
- 631.863** Richardson, H. L.; Wang, Y. Nitrogen conservation of night soil in central China: 1. Change in night soil, feces, and urine on storage. *Soil Sci.* 54, 1942 (381-389).
- 631.867.4** Innes, R. F. The residual effect of fish manure and artificial manures applied to Irish potatoes, as measured by a crop of Miss Kelly red peas. *J. Jamaica Agric. Soc.* 45, 1941 (215-217).
- 631.867.6** Bourmer, H. Utilization of the by-products of slaughtering. *Vornatpfl. LebensmForsch.* 1, 1938 (396-398). C.A. 34 (6731).
- 631.867.6** Jones, L. T. Some organic manures used with vegetables. *J. Dept. Agric. W. Aust.* 20, 1943 (281-285).
- 631.871 : 631.417.4** Walters, M. M. Farm refuse may cause a starvation period in soil. *Farm. S. Africa* 17, 1942 (211-212).
- 631.871 : 631.417.4** Batchelor, H. W. Crop residues and manure. *Ohio Agric. Expt. Sta. Bmo. Bull.* 28, 1943 (60-63).
- 631.871 : 632.556.7** Clark, W. M. The gold in the dirt. *Indian Farm* 2, 1941 (127-129).
- 631.871 : 633.18** Chiappelli, R. A good use for rice straw. *G. Riscolt.* 29, 1939 (297-298). *Biol. Abs.* 35 (110). [I.]
- 631.871 : 633.18** Galvez, N. L.; Romero, I. A. A study on the preparation of compost from rice straw. *Philipp. Agrist.* 29, 1941 (753-765). C.A. 35 (5236).
- 631.871 : 633.51**—Freudenberger, H. Cotton burs as fertilizer. *Arco Press* 19, No. 10, 1941 (20). *Emp. Cott. Grow. Rev.* 19 (16).
- 631.871 : 633.61** McMartin, A. Experiments on the composting of sugarcane trash. *Proc. 16th Ann. Cong. S. Afric. Sug. Tech. Assoc.* 1942 (78-82). *S. Afric. Sug. J.* 26, 1942 (445, 447, 449, 451, 453).
- 631.871 : 634.61**—Salgado, M. L. M. Coconut poonac as manure. *Trop. Agrist.* 95, 1940 (3-7).
- 631.871 : 634.61** Salgado, M. L. M. The utilization of husks on coconut estates. *Trop. Agrist.* 95, 1940 (51-56).



# BIBLIOGRAPHY OF SOIL SCIENCE

- VI, 4     **631.871 : 634.61** -Shrikhande, J. G. Note on the availability of nitrogen in groundnut cake and coconut poonac. *Tea Quart.* 16, 1943 (18-20).
- VII, 4     **631.871 : 634.8** -Briquet, E. Utilization of grape seeds. *Mitt. Lebensm. Hyg.* 33, 1942 (147-157). C.A. 38 (3863).
- V, 6     **631.871 : 634.8** -Corbaz, J.; Deshusses, L. A. Grape marc as heating material for hot beds and as organic manure. *Rev. Hort. Suisse* 15, 1942 (55-59). Hort. Abs. 12 (137).
- VII, 3     **631.871 : 636.086.25** -Demolon, A.; Burgevin, H. The direct ploughing-under of cereal straw into the soil and its repercussions. *Ann. Agron.* 10, 1940 (357-365). C.A. 37 (711).
- VII, 2     **631.871 : 636.086.25** -Crowther, E. M. Straw on the land. *J. Min. Agric.* 49, 1942 (146-150). B.C.A.B. III, 1943 (287).
- 631.871 : 636.086.25** -Culpin, C. Farmyard manure and straw manure. *Wares, Agric. Chron.* 11, 1942 (23-31).
- 631.871 : 636.086.25** -Rayns, F. Straw disposal on the land. *J. Roy. Agric. Soc. England* 104, 1943 (145-150).
- 631.871 : 636.086.25** -Throckmorton, R. I. Methods of straw disposal as related to crop yields on the dry land experiment stations. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (374-377). Biol. Abs. 17, (2176).
- VII, 4     **631.871 : 636.086.25** -Maplestone, C. Composting baled straw. *Gard. Chron.* 115, 1944 (14).
- 631.873** -Moore, L. B. The economic importance of seaweeds. *N.Z. Dept. Sci. Indust. Res. Bull.* 85, 1941, pp. 40.
- 631.873** -Chase, F. M. Useful algae. *Smithson. Instn. Ann. Rept.* (1941-1942) 401-452.
- 631.873** -Isaac, W. E. Seaweeds of possible economic importance in the Union of South Africa. *J. S. Afric. Bot.* 8, 1942 (225-236). Herb. Abs. 13 (380).
- 631.873** -Rapson, A. M.; Moore, L. B.; Elliot, I. L. Seaweed as a source of potash in New Zealand. *N.Z. J. Sci. Tech.* 23, 1943 (14913-17013). Biol. Abs. 17 (1760).
- 631.873 : 631.811.9** -Wilson, S. H.; Fieldes, M. Studies in spectrographic analysis. II. Minor elements in a sea-weed (*Macrocystis pyrifera*). *N.Z. J. Sci. Tech.* 23, 1941 (4711-4813).
- 631.873 : 631.83** -Fruit-Grower. Commercial utilisation of seaweed. A source of potash. *Fruit-Grower* 95, 1943 (444).
- 631.874** -Cassidy, N. G. Some values of green manure crops. *Queensland Agric. J.* 55, 1941 (488-489). Biol. Abs. 16 (211).
- 631.874** -Driessen, F. C. The importance of green manuring for perennial crops. *Begecultures* 15, 1941 (458-469). [Du.]
- VII, 2     **631.874** -Haylett, D. G. Crop residues and soil fertility. *Farm. S. Africa* 18, 1943 (627-636).
- VII, 3     **631.874** -Laubscher, F. X. Rotational cropping and green manuring for soil fertility. *Farm. S. Africa* 18, 1943 (637-640).
- VII, 2     **631.874 : 631.416** -Hill, H. H. The effects of rye, lespedeza, and cowpeas when used as cover crops and incorporated with the soil, on the leachings from Dunmore silt loam soil. *Va. Agric. Expt. Sta. Tech. Bull.* 83, 1943, pp. 16. E.S.R. 89 (520).
- V, 5     **631.874 : 631.416.1** -Jones, R. J. Nitrogen losses from Alabama soils in lysimeters as influenced by various systems of green manure crop management. *J. Amer. Soc. Agron.* 34, 1942 (574-585).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.874 : 631.417.4—Schuster, C. E.** Cover crops for orchards. *Oreg. St. Hort. Soc. Proc. Ann. Meetg.* 32, 1940 (73-78). C.A. 36 (3608). VI, 2
- 631.874 : 631.417.4—Obenshain, S. S. ; Gish, P. T.** The effect of green-manure crops on certain properties of Berks silt loam. *Va. Agric. Expt. Sta. Tech. Bull.* 73, 1941, pp. 12. E.S.R. 86 (616). V, 5
- 631.874 : 631.432.2—Iosava, V. V.** Green manures for arid soils. *Soviet Subtrop.* No. 8, 1940 (37-39). [R.] V, 1
- 631.874 : 631.435.1—Ritchey, G. E.** Natural sources of organic matter for Florida soils. *Proc. Soil Sci. Soc. Florida* 2, 1940 (121-124).
- 631.874 : 631.81—Ward, K. M.** Green manuring—Stanthorpe investigations, 1937-40. *Queensland Agric. J.* 56, 1941 (190-213). V, 1
- 631.874 : 631.842.3—Blair, A. W. ; Prince, A. L.** Comparative values of green manures and nitrate of soda as measured by the growth of small grains. *N.J. Agric. Expt. Sta. Bull.* 677, 1940, pp. 8. E.S.R. 83 (618).
- 631.874 : 633.3—Boletim do Ministério da Agricultura, Industria e Commercio.** The advantages of green manuring. *Bol. Min. Agru. Riode J.* 29, 1940 (53-55). Herb. Abs. 11 (155). V, 1
- 631.874 : 633.3—McKee, R. ; McNair, A. D.** Winter legumes for green manure in the cotton belt. *U.S.D.A. Farm. Bull.* 1663, 1942, pp. 20.
- 631.874 : 633.33—Schultz, E. F.** The cowpea for green manure or in rotation with other cultivated plants. *Rev. Indust. Agric. Tucuman* 29, 1939 (242-246). *Tucuman Esta. Expt. Agric. Circ.* 82, 1939, pp. 7. Herb. Abs. 10 (312). [Sp.]
- 631.874 : 633.33—Viljoen, N. J.** The organic nitrogen content of cowpeas. *Farm. S. Africa* 15, 1940 (368).
- 631.874 : 633.35—Albrecht, H. R.** Vetch varieties for soil improvement and seed production in Alabama. *Ala. Agric. Expt. Sta. Bull.* 253, 1942, pp. 15. V, 5
- 631.874 : 633.366—Davis, J. F.** The effect of sweet clover green manure on crop yields on the heavy soils of Michigan. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (290-293). Biol. Abs. 17 (2171). VII, 1
- 631.874 : 633.367—Burvill, G. H. ; Jones, L. T.** Green manures and compost. *J. Dept. Agric. W. Aust.* 19, 1942 (260-263).
- 631.874 : 633.367—Opitz, K. ; Maurmann, G.** The value, as fertilizer, of the potash contained in lupins. *Botanik. Pflanznähr.* 33, 1943 (129-142). [G.] VII, 3
- 631.874 : 633.372—Kerr, H. W.** Gambua pea as a green manure crop. *Cane Grow. Quart. Bull.* 8, 1940 (70-73).
- 631.875—Timson, S. D.** How does compost work? *Rhod. Agric. J.* 38, 1941 (133-141).
- 631.875—Wallace, J. C. ; Thompson, J. K.** Further results in the use of compost. *Kirton Agric. J.* No. 7, 1941 (11-12). IV, 5
- 631.875—Wallace, J. C.** The use of compost. *Kirton Agric. J.* 8, 1942 (27-29). Biol. Abs. 17 (847). VI, 3
- 631.875—Crowther, E. M.** Composts, their preparation and use. *Ann. Appl. Biol.* 30, 1943 (392-395).
- 631.875—Martin, J. P. ; Wang, Y.** Utilization of plant residues for the production of artificial manures. *J. Amer. Soc. Agron.* 36, 1944 (373-385). VII, 4

## BIBLIOGRAPHY OF SOIL SCIENCE

- VII, 2    **631.875 : 149.918.6 Reinhold, J.** Compost. *ForschDienst. Sonderh.* 16, 1942 (115-123). C.A. 37 (4517).
- VII, 3    **631.875 : 577.16 Starkey, R. L.** Changes in the content of certain B-vitamins in organic materials decomposing under aerobic and anaerobic conditions. *Soil Sci.* 57, 1944 (247-270).
- VII, 3    **631.875 : 631.3 Kertscher, F.** Earth manures and compost machines. *ForschDienst. Sonderh.* 17, 1941 (109-114). [G.]
- 631.875 : 631.3 Krüger, J.** A compost scraper. *Farm. S. Africa* 18, 1943 (689-690).
- V, 5      **631.875 : 631.417.4 Kappen, H.; Reinhardt, F.** The characterization of the extent of decomposition of straw compost by means of the C/N ratio and the pentosan content. *Bodenk. PflErgabr.* 27, 1942 (255-266). [G.]
- V, 6      **631.875 : 631.461.1.3 McCool, M. M.** Some conditions which affect rate of decomposition of kitchen waste. *Boyer Thompson Inst. Contr.* 12, 1942 (269-276). Biol. Abs. 16 (1415).
- VII, 2    **631.875 : 631.461.1.3 De France, J. A.** How to kill weed seeds in compost. I. II. *Golftown* 17, Nos. 5, 7, 1943 (13, 14, 20-24). Biol. Abs. 18 (169).
- IV, 3     **631.875 : 631.812 Acharya, G. N.** The hot fermentation process for composting town refuse and other waste material. III. The hot fermentation vs. aerobic systems of composting. *Indian J. Agric. Sci.* 10, 1940 (448-472). C.A. 35 (565).
- IV, 1     **631.875 : 631.812 Beckley, V. A.** Compost-making in Kenya. *Emp. J. Expt. Agric.* 8, 1940 (311-318).
- 631.875 : 631.812 Beasley, R. P.** Utilization of farm residues. *Agric. Engng.* 22, 1941 (95-96). E.S.R. 85 (544).
- 631.875 : 631.812 East African Agricultural Journal.** A method of compost making used in Nyasaland. *E. Afric. Agric. J.* 7, 1941 (45-47).
- 631.875 : 631.812 Jones, L. T.** Composts. Turning waste materials into valuable manure. *J. Dept. Agric. W. Aust.* 18, 1941 (210-216).
- 631.875 : 631.812 McKibbin, R. L.** A gardener's method of composting for better results from vegetable plots. *Farm. Week S. Africa* 51, 1941 (869).
- 631.875 : 631.812 Maiwald, K.** Helping out farmyard dung with straw compost. *ForschDienst. Sonderh.* 17, 1941 (115-116). [G.]
- 631.875 : 631.812 Paulsen, E. F.; Nijensohn, L.** An essay in making artificial farmyard manure. *J. Agron. Vet.* 1941 (83-104). [Spe.]
- 631.875 : 631.812 Perold, I. S.** Compost: its preparation and uses. *Farm. S. Africa* 16, 1941 (65-67).
- 631.875 : 631.812 Forbes, A. P. S.** A simple method of making compost. *Nyasaland Agric. Quant. J.* 2, No. 4, 1942 (21). *Emp. Cott. Grow. Rev.* 20 (9).
- 631.875 : 631.812 Hopkins, J. M.** Speedy method of making humus. *N.Z. J. Agric.* 64, 1942 (125). Hort. Abs. 12 (134).
- 631.875 : 631.812 Kucinski, K. J.** Preparation and use of artificial manures. *Mass. Agric. Expt. Sta. Bull.* 395, 1942, pp. 12. E.S.R. 88 (165). Biol. Abs. 17 (1066).
- 631.875 : 631.812-Lategan, A. W.** A practical method of making compost. *Farm. S. Africa* 17, 1942 (515-516).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.875 : 631.812** -Lawrence, W. J. C. The John Innes composts. *J. Roy. Hort. Soc.* 67, 1942 (86-91).
- 631.875 : 631.812** Penzhorn, K. E. W. Preparation of compost by the kraal method. *Farm. S. Africa* 17, 1942 (631-633, 635).
- 631.875 : 631.812** Perold, I. S. Compost. *Farm. S. Africa* 17, 1942 (557-562).
- 631.875 : 631.812** Robertshaw, P. Composting garden refuse. *Proc. 16th Ann. Cong. S. Afric. Sug. Tech. Assoc.* 1942 (85-86).
- 631.875 : 631.812** Stöckli, A. The importance of compost for maintaining and raising soil fertility. *Schweiz. Landw. Monatsh.* 20, 1942, pp. 22. [G.]
- 631.875 : 631.812** Timson, S. D. Garden compost. *Rhod. Agric. J.* 39, 1942 (8-10).
- 631.875 : 631.812** Timson, S. D. Kraal compost. *Rhod. Agric. J.* 39, 1942 (161-166).
- 631.875 : 631.812** Tofte, C. R. Compost-making without watering. *Coffee Bd. Kenya Mo. Bull.* 7, 1942 (104). Hort. Abs. 13 (71).
- 631.875 : 631.812** Drew, J. P. ; Deasy, D. Artificial farm-yard manure. *Eur. J. Dipt. Agric.* 40, 1943 (252-256). VII, 2
- 631.875 : 631.812** Martin, J. P. ; Waksman S. A. Synthetic manure. *N. J. Agric. Expt. Sta. Circ.* 470, 1943, pp. 12. E.S.R. 90 (164).
- 631.875 : 631.812** Prellar, J. H. Farm compost. *Farm. S. Africa* 18, 1943 (685-688, 703).
- 631.875 : 631.812** Timson, S. D. Garden compost. *Rhod. Agric. J.* 40, 1943 (358-361).
- 631.875 : 631.812** Viljoen, N. The preparation and use of compost. *Farm. S. Africa* 19, 1944 (359-365, 370). VII, 4
- 631.875 : 632.4** Thompson, A. Notes on plant diseases in 1939. *Malay. Agric. J.* 28, 1940 (400-407). IV, 1
- 631.875 : 632.536** Rayner, M. C. Bracken compost. *Nature* 147, 1941 (641).
- 631.876** Paulsen, E. F., et al. A study of the chemical composition of cottonseed and of cottonseed cakes. *J. Agron. Vet.* 1941 (265-272). [Sp.e.] VII, 1
- 631.876** Gählinbäck, J. Can wood residues be used as a substitute for peat mull? *Bodenk. PflErnähr.* 27, 1942 (368-370). [G.] V, 5
- 631.876** -Daji, J. A. Oilcakes and their uses. *Indian Farm*, 4, 1943 (553-558).
- 631.876** Turk, L. M. The effect of sawdust on plant growth. *Mich. Agric. Expt. Sta. Quant. Bull.* 26, 1943 (10-22). Biol. Abs. 17 (2408). VII, 2
- 631.876 : 631.854** Leniger, H. A. The composition of oil-cakes, guanos, etc. *Bergcultures* 15, 1941 (1170-1171). [Du.] V, 1
- 631.876.2** Filguerias, G. Conversion of distillery waste into useful material by means of waste heat. *Rev. Chim. Indust. Rio de J.* 10, No. 109, 1941 (14-16). C.A. 36 (4264). VI, 3
- 631.876.2** Srinivasan, N. Cane molasses distillery slops. The problem of their disposal and the possibilities of profitable utilization for the recovery of potash. *Sugar* 36, No. 5, 1941 (31-32).

## BIBLIOGRAPHY OF SOIL SCIENCE

- IV, 2    **631.876.9**—Ellis, E. T. Using industrial waste products for agricultural purposes. *J. Yorks. Agric. Soc.* 1939 (94-98).  
**631.876.9**—Vlasiuk, P. A. Industrial wastes as new fertilizers. *Selskhoz. Povedstvo* No. 9, 1939 (50-52). C.A. 36 (1135).  
**631.876.9** Prince, A. L.; Bear, F. E. Nitrogen content of miscellaneous waste materials. *N.J. Agric. Expt. Sta. Circ.* 450, 1942, pp. 4. Biol. Abs. 17 (1283).
- IV, 3    **631.876.9**: **633.61** Poldermans, P. J.; Klokke, P. J. The composition of filter press cake obtained in cane juice clarification. *Arch. Zuckerindust.* 1, 1940 (371-378). C.A. 35 (1257).
- VI, 1    **631.876.9**: **633.61** Martin, J. P. Filter cake compost. *Havan Plant. Rev.* 46, 1942 (53-58).
- VII, 1    **631.876.9**: **633.61** Riollano, A. The value of filter press cake as a fertilizer for vegetable crops. Preliminary trials with tomatoes and cucumbers. *J. Agr. Univ. P.R.* 26, No. 4, 1942 (99-104). E.S.R. 89 (369).
- V, 4    **631.876.9**: **633.61** Sen, P. C.; Basu, K. L. Manurial value of filter-press cake. *Proc. 9th Ann. Cong. Sug. Tech. Assoc. India* 1, 1942 (261-269). B.C.A.B. III, 1942 (99).
- VI, 1    **631.876.9**: **633.61** South African Sugar Technologists' Association. Observations on the fertilizer value and wax content of filter cake. *Proc. 16th Ann. Cong. S. Afric. Sug. Tech. Assoc.* 1942 (52-54).  
**631.876.9**: **633.61** Srivastava, R. C.; Chaturvedi, H. S.; Rao, K. Aswath Narain. Utilization of press-mud, cane-trash and bagasse in the cane fields. I. Composting by aerobic decomposition. *Indian J. Agric. Sci.* 12, 1942 (158-163).
- VI, 3    **631.876.9**: **633.61** Srivastava, R. C.; Rao, K. A. N.; Gupta, G. N. Utilization of waste products of the sugar industry in the cane field. II. Preparation of composts by hot fermentation. *Indian J. Agric. Sci.* 12, 1942 (848-850).  
**631.876.9**: **633.61** Riollano, A. The value of filter press cake as a fertilizer for vegetable crops; preliminary trials with tomatoes and cucumbers. *Proc. Amer. Soc. Hort. Sci.* 42, 1943 (547-550).  
**631.876.9**: **633.63** Helmke, G. Lime from defecation slime. *Deut. Zuckerindust.* 65, 1940 (693-694). C.A. 35 (1257).  
**631.876.9**: **633.63** Spengler, O. Sugar factory press mud. *Ztschr. Wirtschaftscr. Zuckerindust.* 90, 1940 (352-356). F.A.S. 36, 1 (31).  
**631.876.9**: **664.15** Sen, H. D. Disposal of molasses and sugar factory effluents. *Indian Farm.* 2, 1941 (299-302).
- VII, 2    **631.876.9**: **664.15**—Rege, R. D.; Wagle, P. V. Method for using molasses as fertilizer. *Proc. 11th Ann. Cong. Sug. Tech. Assoc. India* Part II, 1943 (78-83). Sugar 39, 2 (41).
- IV, 3    **631.876.9**: **675.08**—Maiwald, K. The suitability of tannery sludges for agricultural use. *ForschDienst.* 10, 1940 (236-248). [G.]
- VI, 3    **631.877**—Beinert, F. K. Agricultural utilization of waste water from the compressed-yeast industry. *Kulturtech.* 1940 (35-62). *Wass. u. Abwass.* 38, 1940 (154-155). C.A. 35 (5248).  
**631.877**—Codling, J. H. Treatment of abattoir waste. *Nature* 146, 1940 (9-12). B.C.A. 59 (708). C.A. 34 (6380).

# FERTILIZERS AND GENERAL AGRONOMY

- 631.877 Sadovsky, P. I.; Zubov, M. F. Utilization of tar waters in agriculture. *Trudy Zashch. Rast.* No. 1-2, 1940 (200-201). C.A. 35 (2265). IV, 5
- 631.877-Bollen, W. A. Decomposition of waste sulphite liquor in soil. *Pacific Pulp Paper Indust.* 16 Dec., 1942 (30-34). B.C.A.B. III, 1943 (93). VI, 3
- 631.877: 631.434-Alderfer, R. B.; Gribbins, M. F.; Haley, D. E. Effect of waste sulfite liquor on aggregation of soil particles. *Indust. Engng. Chem.* 36, 1944 (272-274). VII, 3
- 631.878 Kuprianov, A.; Chesalkina, P.; Krnatiian, T., et al. Methods for activating peat. *Topt. Udob.* 8, 1939 (65-104). C.A. 36 (6288).
- 631.878-Tokuoka, M.; Zyo, S. Artificial humus and its application. II. *J. Soc. Trop. Agric. Taiwan* 11, 1939 (114-121). C.A. 34 (5983). IV, 1
- 631.878 Feustel, I. G. The present status of research relating to the use of peat and muck as soil amendments. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (271-274).
- 631.878-Morgan, M. F. Peat and swamp muck for soil improvement in Connecticut. *Conn. Agric. Expt. Sta. Circ.* 142, 1940, pp. 96.
- 631.878-Pozdena, L.; Themlitz, R.; Bartram, H. Peat composts and their fertilizing action. *Bodenk. PflErnähr.* 16, 1940 (362-384). Biol. Abs. 15 (518). C.A. 34 (8146). [G.]
- 631.878-Prokoshev, V. N. Peat as fertilizer on podzolized light soils. *Khim. Sotsial. Zemled.* No. 11-12, 1940 (22-27). C.A. 37 (6396). VII, 2
- 631.878-Themlitz, R.; Bartram, H. The influence of peat and straw in combination with various nitrogen carriers upon plant growth and soil properties. *Bodenk. PflErnähr.* 18, 1940 (275-291). C.A. 35 (559). [G.]
- 631.878-Themlitz, R.; Pozdena, L.; Bartram, H. The effect of "Biohum" on plant growth and on soil properties. *Landw. Jahrb.* 90, 1940 (712-743). ForschDienst. 12 (5). [G.] V, 2
- 631.878-Bakhulin, M. D. Peat as a fertilizer. I. The use of air-dried peat. *Khim. Sotsial. Zemled.* No. 2, 1941 (25-29). C.A. 37 (494).
- 631.878-Waksman, S. A.; Bear, F. E.; Cox, H. R., et al. Specifications for peat materials. *N.J. Agric. Expt. Sta. Circ.* 407, 1941, pp. 4. C.A. 35 (7099).
- 631.878-Carlyle, R. E.; Newton, J. D. Peat and commercial fertilizers as amendments for gray wooded soils. *Canad. J. Res.* 20C, 1942 (68-84). V, 3
- 631.878-Ruschmann, G.; Pozdena, L.; Themlitz, R., et al. The influence of the humus fertilizer, Huminal B, on plant growth and on the properties of the soil. *Landw. Jahrb.* 92, 1942 (53-93). C.A. 38 (2782). [G.] VII, 4
- 631.878-Springer, U. The effects of ammoniation upon the organic matter of high-moor peats. *Bodenk. PflErnähr.* 28, 1942 (160-186). [G.] V, 6
- 631.878-Kappen, H. The possibility of using lignite for soil improvement. *Bodenk. PflErnähr.* 29, 1943 (361-369). [G.] VII, 1

# BIBLIOGRAPHY OF SOIL SCIENCE

- VII, 3    **631.878--Ruschmann, G.; Themlitz, R.; Pozdena, L., et al.** The effect of the commercial humus manure "Nettolin" on plant growth and soil properties. *Bodenk. Pfl. Ernähr.* 32, 1943 (35-85). [G.]
- VII, 4    **631.878--Andrés, J. A.** The catalytic effect of colloidal lignite. *Bol. Inst. Invest. Agron. Madrid* No. 10, 1944 (193-215). [Sp.]
- VI, 2    **631.878 : 546.72 Katsnelson, S.** The value of peats rich in iron as fertilizers. *Tor. Udob.* 8, 1939 (105-120). C.A. 36 (7216).
- VI, 2    **631.878 : 631.412 Katsnelson, S.** The effect of peat fertilizers on the physical-chemical properties of soils. II. The effect of peat added simultaneously with lime. *Tor. Udob.* 8, 1939 (23-38). C.A. 36 (6288).
- VI, 2    **631.878 : 631.412 Zagorskaia, A.** The effect of peat fertilizers on the physico-chemical properties of soils. I. Changes in the absorption capacity of soils on adding peats of various botanical compositions. III. Application of peats rich in calcium as fertilizers. *Tor. Udob.* 8, 1939 (13-22, 39-48). C.A. 36 (6288, 7216).
- 631.878 : 631.461.13 Ruschmann, G.; Bartram, H.; Themlitz, R.** Decomposition and application of humus manures and composts. *Zbl. Bakt.* 11, 194, 1941 (33-70). [G.]
- VII, 4    **631.878 : 631.831 Reinhold, J.; Hausrath, E.** Results of trials made in 1940 of composts including lignite briquette ash. *ForschDienst. Sonderh.* 17, 1941 (125-145). [G.]
- 631.878 : 631.879.1 Hudig, J.** The preparation, use and action of stabilized humus. *Landbouwk. Tijdschr.* 52, 1940 (882-886). Biol. Abs. 15 (1795).
- IV, 6    **631.878 : 631.879.1 Hudig, J.; Reesema, N. H. S. van.** The stability of humus material. I. *Landbouwk. Tijdschr.* 52, 1940 (371-398, 529-576, 577-634). Biol. Abs. 15 (1199).
- 631.879.1 Stöckli, A.** Utilization of town refuse. *Schweiz. Landw. Monatsh.* 17, No. 3, 1939 (10-23). [G.]
- IV, 1    **631.879.1 Strain, W. B.** The agricultural value of screened dust. *Inst. Pub. Cleans. Ann. Conf. Scarborough* 1939, pp. 21.
- 631.879.1 Scharff, J. W.** Composting. The safe conversion of village refuse and night-soil into a valuable manure. *J. Malaya Br. Brit. Med. Assoc.* 4, 1940 (126-135). *Trop. Agricult.* 97, 1941 (294-301). Biol. Abs. 15 (534).
- 631.879.1--Strain, W. B.** Screened dust and its uses. *Nature* 146, 1940 (610-612).
- 631.879.1 Ministry of Agriculture.** Town refuse as soil improver. *Min. Agric. Advis. Leaflet* 230, 1941, pp. 3.
- 631.879.1 Temple, F. G.** Municipal manufacture of humus from habitation wastes. *J. Roy. Soc. Arts* 89, 1941 (215-228).
- 631.879.1 Wrench, G. T.** The use of town wastes as a war measure. *Indian Farm* 2, 1941 (284-286).
- VI, 2    **631.879.1--Ellassen, R.** War conditions favour landfill refuse disposal. *Engng. News-Rec.* 128, 1942 (912-914). C.A. 36 (4945).
- V, 6    **631.879.1--Gray, R.** The use of certain cheap organics in agriculture. *Fert. Feed. J.* 28, 1942 (339, 341-343).
- V, 6    **631.879.1--McCool, M. M.** Agronomic value of kitchen waste. *Boyce Thompson Inst. Contr.* 12, 1942 (345-358).
- 631.879.1--Van Zyl, J. P.** Conversion of refuse into soil fertility. *Farm. S. Africa* 17, 1942 (634-635).

## FERTILIZERS AND GENERAL AGRONOMY

- 631.879.1- Walton, D. W.** Using rural waste: Hampshire experiment with the Indore method. *Fert. Feed. J.* 28, 1942 (419, 421).
- 631.879.1- Williams, G. B.** Manufacture of fertilizer from urban wastes. *Nature* 150, 1942 (299). *Biol. Abs.* 17 (1283).
- 631.879.1- Catterall, R.** Composting of town refuse and sewage. *Farm and Forest* 4, 1943 (37-39).
- 631.879.1 Dymond, G. C.** Habitation wastes and composting in the sugar belt. *Proc. Ann. Cong. S. Afric. Sug. Tech. Assoc.* 17, 1943 (53-56).
- 631.879.1 Pfeil, E.; Tritt, A.** The agricultural and horticultural value of town refuse. *Bodenk. Pfl. Ernähr.* 29, 1943 (370-382). [G.] VII, 1
- 631.879.1- Van Vuren, J. P. J.** Municipal compost. *Farm. S. Africa*, 18, 1943 (682-684). VII, 3
- 631.879.1 Acharya, C. N.** Preparation of compost manure from town wastes. *Imp. Comm. Agric. Res. Misc. Bull.* 60, 1944, pp. 10. VII, 3
- 631.879.1:016 New York Department of Sanitation.** Survey of landfill characteristics. *N.Y. Dept. Sanit.* 1941, pp. 90. *Biol. Abs.* 16 (2055). VI, 1
- 631.879.2 Volkart, A.** Agricultural utilization of town sewage and sewage products. *Schweiz. Landw. Monatsh.* 17, No. 3, 1939 (2-10). [G.]
- 631.879.2 Van Kleeck, L. W.** The use of sewage sludge as fertilizer and soil conditioner. *Public Works N.Y.* 71, 1940 (20-22). *C.A.* 34 (6751). IV, 1
- 631.879.2 Barnes, E. E.** Fertilizing value of garbage tankage and sewage sludge. *Ohio Agric. Expt. Sta. Bmo. Bull.* 209, 1941 (39-44). *E.S.R.* 85 (450). V, 1
- 631.879.2 Brouwer, J.** The effect of sewage water on cultivated plants. *Forsch.Dienst. Sonderh.* 14, 1941 (232-244). *C.A.* 38 (1830). VII, 4
- 631.879.2 Cranfield, H. T.** The manurial value of sewage sludge. *J. Inst. Sewage Purif.* 1941 (223-235). *C.A.* 37 (2503).
- 631.879.2 Fertiliser, Feeding Stuffs and Farm Supplies Journal.** Sludge as a fertiliser. *Fert. Feed. J.* 26, 1941 (175, 177-178).
- 631.879.2 Finch, J.** The possibilities of and economics relating to organic manures as applied to air-dried sewage sludge. *J. Inst. Sewage Purif.* 1941 (98-103). *Biol. Abs.* 18 (1004).
- 631.879.2 Fowler, G. J.** Concerning humus. *Fert. Feed. J.* 26, 1941 (363, 365-366). V, 1
- 631.879.2 Crowther, E. M.; Bunting, A. H.** The manurial value of sewage sludges. *Inst. Sewage Purif. Ann. Summer Meetg.* 1942, pp. 16.
- 631.879.2 Rudolfs, W.; Gehm, H. W.** Chemical composition of sewage sludges, with particular reference to their phosphoric acid contents. *N.J. Agric. Expt. Sta. Bull.* 699, 1942, pp. 15. *Biol. Abs.* 17 (1254). VI, 3
- 631.879.2 Wetzel, A.** Fertilizer problems in growing vegetables on land irrigated with sewage. *Ernähr. Pfl.* 38, 1942 (65-69). *C.A.* 38 (3407). VII, 4



## BIBLIOGRAPHY OF SOIL SCIENCE

- VI, 4    **631.879.2—Van Kleeck, L. W.** Use of sewage sludge as fertilizer. *Proc. Amer. Soc. Civil Engrs.* 69, 1943 (70-79). B.C.A.B. III, 1943 (118).
- 631.879.2 : 631.67—Hutchins, W. A.** Use of sewage effluents in irrigation. *Public Works N.Y.* 71, 1940 (32). C.A. 34 (7048).
- IV, 3    **631.879.2 : 631.67—Kolomitsev, G. M.** Sewage irrigation in the sovkhos "Irrigation Fields." *Dokl. Akad. S.-Kh. Nauk.* No. 11, 1940 (22-27). [R.]
- V, 5    **631.879.2 : 631.67—Talati, R. P.** The disposal of Poona sewage for irrigation and cropping. *Indian J. Agric. Sci.* 12, 1942 (164-177).
- VI, 4    **631.879.2 : 631.811.2 Joshi, K. G.** Nature and fertilizing value of phosphorus in sewage. *Curr. Sci.* 11, 1942 (465-466). B.C.A.B. III, 1943 (141).
- IV, 3    **631.879.2 : 631.811.9 Rehling, C. J. ; Truog, E.** Milorganite as a source of minor nutrient elements for plants. *J. Amer. Soc. Agron.* 32, 1940 (894-906). C.A. 35 (1169).
- IV, 6    **631.879.2 : 631.811.9 Rudolfs, W.** Fertilizer and fertility value of sewage sludge. *Water Works and Sewerage* 87, 1940 (575-578). B.C.A.B. III, 1941 (166).
- IV, 1    **631.879.2 : 631.812 Acharya, C. N.** The hot fermentation process for composting town refuse and other waste material. III. The hot fermentation vs. aerobic systems of composting. *Indian J. Agric. Sci.* 10, 1940 (448-472).
- IV, 2    **631.879.2 : 631.812 Falck, T.** Utilization of the sludge from municipal sewage-settling plants. *Gesundh.-Ing.* 63, 1940 (138-140). C.A. 34 (7047).
- 631.879.2 : 631.812—Scott, W. ; Turner, H. ; Sykes, J. M., et al.** Manufacture and utilization of sewage sludge as fertilizer. *J. Inst. Sewage Purif.* 1942 (196-206). B.C.A.B. III, 1944 (79).
- VI, 4    **631.879.2 : 631.812—Scharff, J. W.** Use of sullage-water precipitate in making compost. *J. Roy. Sanit. Inst.* 63, 1943 (92-94). B.C.A.B. III, 1943 (118).
- VI, 3    **631.879.2 : 631.821.1—Ostapenya, P. V. ; Postnikova, E. N.** Results of liming soils of sewage-irrigated fields. *Vodosnab. Sanit. Tekh.* No. 11-12, 1939 (93-94). C.A. 36 (3606).
- V, 3    **631.879.2 : 631.875—Griffin, F. C.** Sewage sludge as a starter for compost. *Indian Farm.* 2, 1941 (573-574).
- VII, 4    **631.879.2 : 631.875—Ransome, F. H.** Straw sludge: Hampshire experiments. *J. Min. Agric.* 51, 1944 (202-204).
- V, 3    **631.879.2 : 633.2.03—Fehrendt, W.** Experiments on sprinkling sewage over grassland. *Landw. Jahrb.* 91, 1941 (449-476). [G.]
- 631.879.2 : 633.2.03—Newrzella, B.** The effect of sewage, more or less purified, on soil and herbage of grassland. *Landw. Jahrb.* 91, 1941 (477-517, 518-546). [G.]

## 631.893 MIXED AND COMPOUND FERTILIZERS

- 631.893—Anker-Rasmussen, S.** Compound fertilisers in Norway. *Fert. Feed. J.* 24, 1939 (539). C.A. 34 (5992).
- 631.893—Kappen, H. ; Beiling, R. W. ; Utach, W.** Vegetation experiments with various mixed fertilizers on acid soils. *Bodenk. PflErnähr.* 18, 1940 (353-369). C.A. 35 (558). [G.]

## FERTILIZERS AND GENERAL AGRONOMY

- 631.893 : 631.812**—Zvorykin, A. Ya. ; Ketkovich, V. Ya. Concentrated fertilizers containing phosphorus, potassium, ammonia and magnesium from polyhalite. *C.R. Acad. Sci. (U.S.S.R.)* 27, 1940 (464-465). C.A. 35 (1566). [E.]
- 631.893 : 631.813** Nichik, M. M. Comparative effectiveness of the systematic use of simple, low-percent and complex, concentrated fertilizers. *Khim. Sotsial. Zemled.* No. 5, 1941 (12-21). [R.] V, 3
- 631.893.2**—Michael, G. Results of exploratory trials with some further new phosphatic fertilizers. *ForschDienst.* 13, 1942 (112-116). [G.] V, 6

## 632 PLANT DISEASES. PLANT PROTECTION

- 632 : 546.34**—Kent, N. L. The influence of lithium salts on certain cultivated plants and their parasitic diseases. *Ann. Appl. Biol.* 28, 1941 (189-209). IV, 6
- 632 : 631.347.24**—Palti, J. ; Miller, J. Experiments on the use of sprinklers for plant protection. *Hassadch* 24, 1944 (381-383). [Hb.]
- 632 : 631.81**—Fernando, M. The incidence of plant disease in Ceylon in relation to environmental factors. *Trop. Agricul.* 95, 1940 (72-78).
- 632 : 631.81**—Thomas, W. ; Mack, W. B. A foliar diagnosis study of the nutrition of greenhouse tomatoes in relation to the incidence of a disease. *Pa. Agric. Expt. Sta. Bull.* 405, 1941, pp. 17. V, 1
- 632 : 631.81**—Thomas, W. ; Mack, W. B. Susceptibility to disease in relation to plant nutrition. *Science* 93, 1941 (188-189). R.A.M. 20 (431). C.A. 35 (4540). IV, 6
- 632 : 631.81**—McNew, G. L. ; Sayre, C. B. The use of fungicides during war. II. The effect of soil fertility on returns from use of fungicides. *Canner* 96, No. 7, 1943 (14, 15, 42, 44). Biol. Abs. 18 (390). VII, 3
- 632.111 : 631.81** Rohde, G. The influence of mineral fertilizers on winter-hardiness of crop plants. *Ernahr. Pfl.* 38, 1942 (6-9, 14-18). [G.]
- 632.111 : 631.811.9** Lawless, W. W. Effect of freeze damage on citrus trees and fruit in relation to grove practices. *Citrus Indust.* 22, No. 8, 1941 (3, 6, 7, 14, 15). Biol. Abs. 15 (2259). V, 2
- 632.183**—Hanley, F. Lodging in cereals. *J. Min. Agric.* 48, 1942 (212-216). Herb. Abs. 12 (129).
- 632.183**—Hampton, H. E. A preliminary study of lodging of oats. *Better Crops with Plant Food* 26, No. 10, 1943 (11-13, 40-41). C.A. 37 (1552). VII, 3
- 632.183**—Raman, P. K. Preliminary studies on the windbreak effect of crops. *Indian J. Agric. Sci.* 13, 1943 (273-278). VII, 2
- 632.183 : 546.711**—Vlasiuk, P. A. Effect of manganese fertilizers on resistance of cereals to lodging. *Nauch. Zap. Sakh. Prom. Agron.* No. 1, 1939 (13-19). Pedology No. 5, 1940 (120). IV, 2
- 632.183 : 631.81**—Titta, G. Relationships between manuring and lodging of wheat. *Ann. Fac. Agrar. Univ. Pisa* 2, 1939 (259-270). Biol. Abs. 16 (218). [I.e.] V, 3

## BIBLIOGRAPHY OF SOIL SCIENCE

- IV, 6     **632.183 : 631.81** Volkov, I. A. ; Perekal'sky, F. M. The effect of mineral fertilizers on the morphological and anatomical characteristics of cereals in relation to lodging. *Khim. Sotsial. Zemled.* No. 5, 1940 (36-42). [R.]
- V, 2     **632.183 : 631.81** Crain, A. W. Observations on the relationship between soil treatments and lodging of sorghum. *Proc. Okla. Acad. Sci.* 21, 1941 (73-76). Biol. Abs. 15 (2254).
- V, 2     **632.183 : 631.83** Jacob, A. ; Pietscher, H. The effect of potash manuring on the resistance to lodging of cereal straw. *Ernahr. Pfl.* 37, 1941 (85-88). [G.]
- IV, 1     **632.184** Katz, M. ; Ledingham, G. A. ; McCallum, A. W., et al. Effect of sulphur dioxide on vegetation. I. Field studies. A) Sulphur dioxide in the atmosphere of industrial areas. (B) Symptoms of injury on forest and crop plants. (C) Sulphur content of trees and shrubs in relation to sulphur dioxide in the atmosphere. (D) Hydrogen-ion concentration, base exchange capacity, and sulphate content of soils. (E) Hydrogen-ion concentration and sulphate content of water supplies. (F) Effect of sulphur dioxide on diameter increments of conifers. II. Fumigation studies [on conifers and crop plants]. G. H. I. J. K. L. M. N. *Canada Nat. Res. Council Pub.* 815, 1939 (1-447). B. C. A. B. 59 (6889). C. A. 34 (5884).
- 632.184** Jones, H. T. Agriculture and smoke pollution. *Gas J.* 231, 1940 (206). C. A. 34 (6751).
- V, 6     **632.184** Metcalfe, C. R. Damage to greenhouse plants caused by town fogs, with special reference to sulphur dioxide and light. *Ann. Appl. Biol.* 28, 1941 (301-315). B. C. A. B. III, 1942 (179).
- VII, 4    **632.184 : 547.211** Balks, R. ; Wehrmann, O. Can fire-damp damage crop plants? Investigations of the effect on soil and plants. *ForschBerst.* 17, 1944 (133-138). [G.]
- 632.187** Gliese, H. Rural fire prevention. *Agric. Engng.* 23, 1942 (120-125).
- 632.187 : 633.283** Bartels, L. G. Firebreaks in pastoral country. The possibilities of kikuyu grass. *J. Dept. Agric. Victoria* 42, 1944 (220-221).
- V, 5     **632.187 : 634.989.84** Diebold, G. H. Effect of fire and logging upon the depth of the forest floor in the Adirondack region. *Proc. Soil Sci. Soc. Amer.* 1941 6, 1942 (409-413).
- VI, 1     **632.19** Crawford, R. F. Causes and control of chlorosis in New Mexico. *N. Mex. Agric. Expt. Sta. Bull.* 264, 1939, pp. 12. B. C. A. B. III, 1942 (212).
- IV, 1     **632.19** Chapman, H. D. ; Liebig, G. F., Jr. ; Vanselow, A. P. Some nutritional relationships as revealed by a study of mineral deficiency and excess symptoms in citrus. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (196-200).
- IV, 5     **632.19** Kneag, K. K. Nature and control of shade tree chlorosis in Lansing, Michigan. *Natl. Shade Tree Conf. Proc.* 16, 1940 (32-38). For. Abs. 2 (322).
- 632.19** DeTurk, E. E. Plant nutrient deficiency symptoms. Physiological basis. *Indust. Engng. Chem.* 33, 1941 (648-653).
- 632.19** Skok, J. Some mineral deficiency symptoms in plants. *Trans. Ill. St. Acad. Sci.* 34, 1941 (78-81). Biol. Abs. 16 (1896).
- 632.19** Bond, T. E. T. Deficiency diseases and the role of the "minor elements" in plant life. *Tea Quart.* 16, 1943 (9-15).

# FERTILIZERS AND GENERAL AGRONOMY

- 632.19** —Dippenaar, B. J. The control of deficiency diseases in plants. *J. agric. Sci. Africa* 18, 1943 (189-194).
- 632.19** Wallace, T. The diagnosis of mineral deficiencies in plants. A colour atlas and guide. *H.M. Stationery Office, London*, 1943. pp. 116.
- 632.19**—Wallace, T. Mineral deficiencies in vegetable and fruit crops and visual methods of diagnosis. *Occas. Pub. Sci. Hort.* 4, 1943 (38-40). *Hort. Abs.* 13 (101).
- 632.19 : 546.27** Anet, H. The effect of boron on plants and its significance in the physiological or deficiency diseases of fruit trees. *Rev. Hort. Suisse* 13, 1940 (214-221). *Hort. Abs.* 11 (17). *R.A.M.* 20 (308).
- 632.19 : 546.27** Dennis, A. C. ; Dennis, R. W. G. Boron and plant life. Part IV. Developments in agriculture and horticulture, 1939-40. *Fert. Fed. J.* 25, 1940 (407-410, 423-424, 426-427).
- 632.19 : 546.27** Atwater, C. G. The ancient history of boron deficiency symptoms. *J. Amer. Soc. Agron.* 33, 1941 (939-942).
- 632.19 : 546.27** Muhr, G. R. Plant symptoms of boron deficiency and the effects of borax on the yield and chemical composition of several crops. *Soil Sci.* 54, 1942 (55-65). V, 6
- 632.19 : 546.27 : 551.35** Krügel, C. ; Dreyspring, G. ; Lotthammer, R. Contribution to the boron problem. *Ztschr. Anal. Chem.* 123, 1941 (15-22). [G.] V, 3
- 632.19 : 546.56** Mulder, E. G. Copper deficiency as a cause of reclamation disease. *Ztschr. PflKrank. PflSchad.* 50, 1940 (230-272). *C.A.* 35 (2260). IV, 4
- 632.19 : 546.56** Nieschlag, F. ; Westerhoff, H. A copper-bearing slag as a substitute for copper sulphate in the control of reclamation disease. *Bodenk. PflErnähr.* 20, 1940 (225-247). *R.A.M.* 20 (351). [G.] IV, 6
- 632.19 : 546.56** Steenbjerg, F. Copper in soils and cultivated plants with special reference to white-tip disease. *Tidsskr. Planteavl* 1940 (9-118). *C.A.* 35 (1170). [Dac.]
- 632.19 : 546.56** Nicolaisen, W. ; Leitzke, B. Pot experiments on the suitability of various products of the copper industry for control of reclamation disease. *Pflanzenbau* 17, 1941 (263-293). *R.A.M.* 21 (134). V, 3
- 632.19 : 546.56** Piper, C. S. Investigations on copper deficiency in plants. *J. Agric. Sci.* 32, 1942 (143-178). V, 4
- 632.19 : 546.56** Riceman, D. S. ; Anderson, A. J. The symptoms and effects of copper deficiency in cereals and pasture plants in South Australia. *J. Dept. Agric. S. Aust.* 47, 1943 (64-72). VII, 2
- 632.19 : 546.56 : 546.77** Hoagland, D. R. Water culture experiments on molybdenum and copper deficiencies of fruit trees. *Proc. Amer. Soc. Hort. Sci.* (1940) 38, 1941 (8-12). *R.A.M.* 20 (479).
- 632.19 : 546.711** Rademacher, B. On the suitability of the manganese in basic, Martin, and blast-furnace slags for the control of grey speck disease. *Bodenk. PflErnähr.* 19, 1940 (166-187). *R.A.M.* 20 (251). v [G.] IV, 5
- 632.19 : 546.711** Wallace, T. A note on manganese deficiency in agricultural and horticultural crops. *Long Ashton Agric. Hort. Res. Sta. Ann. Rept.* 1940 (19-23). IV, 4

## BIBLIOGRAPHY OF SOIL SCIENCE

- VII, 1    **632.19:546.711 Epstein, E.; Lilleland, O.** A preliminary study of the manganese content of the leaves of some deciduous fruit trees. *Proc. Amer. Soc. Hort. Sci.* 41, 1942 (11-18);
- V, 6    **632.19:546.711 Wallace, T.; Ogilvie, L.** Manganese deficiency of agricultural and horticultural crops. Summary of investigations, season 1941. *Long Ashton Agric. Hort. Res. Sta. Ann. Rept.* 1941 (45-48).
- VII, 1    **632.19:546.711 Pizer, N. H.** Manganese deficiency as affecting arable crops. *J. Land Agents' Soc.* 42, 1943 (244-246).
- V, 2    **632.19:546.711:631.411.4 Sherman, G. D.; Harmer, P. M.** Manganese deficiency of oats on alkaline organic soils. *J. Amer. Soc. Agron.* 33, 1941 (1080-1092).
- V, 5    **632.19:546.711:631.811.1 Leeper, G. W.** Manganese deficiency and accumulation of nitrates in plants. *J. Aust. Inst. Agric. Sci.* 7, 1941 (161-162). R.A.M. 21 (284).
- IV, 3    **632.19:546.72 Chandler, W. V.; Scarseth, G. D.** Iron starvation as affected by over-phosphating and sulfur treatment on Houston and Sumter clay soils. *J. Amer. Soc. Agron.* 33, 1941 (93-104).
- V, 3    **632.19:546.72 Thorne, D. W.** Factors influencing the solubility of iron and phosphorus in chlorotic and nonchlorotic areas of Hyrum clay loam. *Iowa St. Coll. J. Sci.* 15, 1941 (433-445). E.S.R. 86 (169). Bot. Abs. 16 (475).
- VI, 2    **632.19:546.72 Thorne, D. W.; Brown, J. C.** Some characteristics of Utah chlorotic soils. *Proc. Utah Acad. Sci.* 18, 1941 (11). R.A.M. 22 (51).
- VII, 3    **632.19:546.72 Starr, G. H.** Control of chlorosis in cottonwood trees and other plants. *Wyo. Agric. Expt. Sta. Bull.* 252, 1942, pp. 16. C.A. 37 (1004).
- 632.19:631.416.7 Ijij, W. S.** Lame chlorosis of plants and its biochemistry. *Jahrb. Wiss. Bot.* 90, 1942 (464-529). Hort. Abs. 14 (76).
- VII, 3    **632.19:631.416.7 Thorne, D. W.; Wallace A.** Some factors affecting chlorosis on high-lime soils: I. Ferrous and ferric iron. *Soil Sci.* 57, 1944 (299-312).
- VII, 2    **632.19:631.811.3 Smith, W. P. C.** Potash deficiency. *J. Dept. Agric. W. Aust.* 20, 1943 (147-150).
- 632.19:631.811.7 Schropp, W.; Arenz, B.** The effects of sulphur deficiency on the morphology, yield and nitrogen utilization of some crop plants. *Bodenk. PflErnähr.* 20, 1940 (68-81). *ForschDienst.* 11 (10). [G.]
- 632.19:631.811.7 Eaton, S. V.** Influence of sulphur deficiency on metabolism of black mustard. *Bot. Gaz.* 104, 1942 (306-315).
- V, 4    **632.19:631.811.9 Bortels, H.** The significance of the trace elements in the origin and prevention of plant diseases. *Nachricht. Deut. PflSchDienst.* 21, 1941 (69-72). R.A.M. 21 (266).
- V, 1    **632.19:631.811.9 Nieschlag, F.** The effect of sulphates of copper, manganese, magnesium, iron, aluminium and calcium on soil affected with reclamation disease. *Bodenk. PflErnähr.* 23, 1941 (350-356). [G.]
- VI, 3    **632.2:631.466.1 Deschiena, R.** Utilization of predaceous fungi to control infestations by plant nematodes. *C.R.* 213, 1941 (148-151). *Helminth. Abs.* 10 (117). [F.]

# FERTILIZERS AND GENERAL AGRONOMY

- 632.2 : 631.466.1**—Drechsler, C. Predaceous fungi. *Biol. Rev.* 16, 1941 (265-290).
- 632.2 : 631.466.1**—Roubaud, E. ; Deschiens, R. The prophylaxis of sheep eelworms, utilizing predaceous soil fungi. *C.R. Soc. Biol. Paris* 135, 1941 (607-690). Helminth. Abs. 10 (118). [F.] VI, 3
- 632.2 : 631.582**—Shaw, K. G. The effect of crop rotation on the control of *Heterodera marioni* on Norfolk sandy loam. *Phytopath.* 30, 1940 (710). Herb. Abs. 10 (366).
- 632.4**—Person, L. H. ; Chilton, S. J. P. Seed and soil treatment for the control of damping-off. *La. Agric. Expt. Sta. Bull.* 349, 1942, pp. 16. E.S.R. 87 (810).
- 632.4 : 551.58**—Melchers, L. E. Climate in relation to plant diseases. *Trans. Kans. Acad. Sci.* 44, 1941 (172-182). R.A.M. 21 (385).
- 632.4 : 631.4** Fellows, H. Effect of certain environmental conditions on the prevalence of *Ophioidius graminis* in the soil. *J. Agric. Res.* 63, 1941 (715-726).
- 632.4 : 631.415.1** Jackson, L. W. R. Effects of H-ion and Al-ion concentrations on damping-off of comers and certain causative fungi. *Phytopath.* 30, 1940 (563-573). R.A.M. 19 (681).
- 632.4 : 631.436** Bliss, D. E. Relation of soil temperature to Armillaria root rot in California. Abs. in *Phytopath.* 31, 1941 (3). R.A.M. 20 (160). IV, 4
- 632.4 : 631.462**—Sanford, G. B. Studies on *Rhizoctonia Solani* Kuhn. V. Virulence in steam sterilized and natural soil. *Canad. J. Res.* 19C, 1941 (1-8). IV, 3
- 632.4 : 631.58**—Crawford, R. F. Root rot and its control. *N. Mex. Agric. Expt. Sta. Bull.* 283, 1941, pp. 13. B.C.A.B. III, 1942 (212). VI, 1
- 632.4 : 631.81**—Pryor, D. E. The effect of some mineral nutrients on the development of clubroot of crucifers. *J. Agric. Res.* 61, 1940 (149-160).
- 632.4 : 631.841.5**—Baur, K. ; Huber, G. A. Effect of fertilizer materials and soil amendments on development of apothecia of *Sclerotinia fructicola*. *Phytopath.* 31, 1941 (1023-1030). R.A.M. 21 (145). V, 3
- 632.4 : 631.85**—Coons, G. H. ; Kotila, J. E. ; Bochstahler, H. W. Black root investigations in Michigan and Ohio. *Proc. Amer. Soc. Sug. Beet Tech.* 1941. R.A.M. 21 (60). V, 2
- 632.51**—Snider, H. J. Probable effects of weeds on the fertility of soils. *Trans. Ill. St. Acad. Sci.* 33, No. 2, 1940 (34-35). C.A. 35 (2259).
- 632.51**—Holmes, C. H. Weeding in the up-country timber and fuel-plantations. *Trop. Agricut.* 96, 1941 (274-294). IV, 6
- 632.51**—Wehsarg, O. Bringing about increases in yield through rational weed control. *Mitt. Landw.* 56, 1941 (254-255). Forstb.-Monst. 12 (37). [G.]
- 632.51**—Saxby, S. H. Weeds. Perennial weeds. *N.Z. J. Agric.* 67, 1943 (247-251, 407-410); 68, 1944 (9-12). VII, 1, 2
- 632.51**—Wilson, H. K. Control of noxious plants. *Bot. Rev.* 10, 1944 (279-326).
- 632.51 : 546.27**—Schropp, W. The effect of boron on some weeds. *Bodenk. PflErnähr.* 30, 1943 (381-392). [G.] VI, 4

# BIBLIOGRAPHY OF SOIL SCIENCE

- IV, 2    **632.51 : 631.51**—Hardy, E. A. Weed control in western Canada. *Agric. Engng.* 21, 1940 (476).
- IV, 5    **632.51 : 631.51**—Pavlychenko, T. K. ; Kirk, L. E. ; Kossar, W. Eradication of perennial weeds by the shallow cultivation method. *Univ. Saskatchewan Agric. Ext. Bull.* 100, 1940, pp. 8.
- VI, 1    **632.51 : 631.51**—Djuric, O. The weed problem. 3. Combating weeds during the summer. (a). On muck land. *Stenska Vall- o. Mosskören. Kvartalsskr.* 3, 1941 (219-224). Biol. Abs. 16 (2077). [Sw.]
- V, 1    **632.51 : 631.51**—Dobrokhlebov, I. F. Wintering weeds and methods of control. *Dokl. Akad. S.-Kh. Nauk* No. 1, 1941 (12-14). [R.]
- \*    **632.51 : 631.51**—Shedd, C. K. ; Collins, E. V. ; Davidson, J. B. Weed control in growing corn. *Univ. Agric. Expt. Sta. Bull.* 144, 1942 (437-467). E.S.R. 87 (863).
- V, 3    **632.51 : 631.588.1**—Dieffenbach, E. M. Electrical weed control. *Agric. Engng.* 21, 1940 (486-488). E.S.R. 86 (396).
- IV, 3    **632.51 : 631.86**—Sandberg, G. Weed control in winter. *Stenska Vall- o. Mosskören. Kvartalsskr.* 2, 1940 (423-431). [Sw.]
- V, 4    **632.51 : 633.289**—Pavlychenko, T. K. The place of crested wheat grass, *Agropyron cristatum* L., in controlling perennial weeds. *Sci. Agric.* 22, 1942 (459-460).
- IV, 5    **632.536**—Millard, W. A. ; Stubbs, J. Eradication of bracken. *J. Min. Agric.* 48, 1941 (11-15).
- VII, 4    **632.536 : 581.192**—Smith, A. M. ; Fenton, E. W. The composition of bracken fronds and rhizomes at different times during the growing season. *J. Soc. Chem. Indust.* 63, 1944 (218-219).
- IV, 2    **632.536 : 631.51**—Griffith, M. Experiment on the eradication of bracken by summer ploughing. *Welsh J. Agric.* 16, 1940 (227-230).
- VI, 3    **632.536 : 631.841.5**—Copisarow, M. Reclamation of bracken land. *Nature* 151, 1943 (139). B.C.A.B. III, 1943 (70).
- VII, 4    **632.536 : 631.841.5**—Copisarow, M. Certain growth promoters and fertilisers. Part III. Calcium cyanamide and manganous sulphate in the reclamation of bracken-land. *J. Soc. Chem. Indust.* 63, 1944 (190-191).
- \*    **632.536 : 632.19 : 546.711**—Hunter, J. G. A chlorosis of bracken due to manganese deficiency. *Nature* 150, 1942 (578-579).
- \*    **632.554.21**—Llosa, C. B. Johnson grass and a new method for its control. *Peru E. la. Expt. Agric. La Molina Circ.* 58, 1941, pp. 16. [Sp.]
- VII, 2    **632.554.21**—Arceneaux, G. ; Gebert, L. P. Controlling Johnson grass and alligator weed on sugar cane lands. *Sug. Bull.* 22, No. 3, 1943 (21-25). *Sugar* 39, 2 (40).
- V, 4    **632.554.21 : 631.51**—Dobrokhlebov, I. F. *Agropyron repens* and means of controlling it. *Soviet. Agron.* No. 2, 3, 1940 (78-81). Herb. Abs. 12 (29). [R.]
- \*    **632.554.21 : 631.61**—Pevchouse, H. M. Possibilities of Johnson grass in northwest Texas. *Soil Conservation* 6, 1940 (68-70, 77). Biol. Abs. 15 (1195).
- IV, 1    **632.554.22**—Andrews, F. W. The control of nut grass in the Sudan Gezira. *Emp. J. Expt. Agric.* 8, 1940 (215-222).
- VI, 1    **632.554.22**—Fromm, F. The eradication of nut grass. *Science* 96, 1942 (337-338).

# FERTILIZERS AND GENERAL AGRONOMY

- 632.554.22 - Du Preez, W. B.** The nut grass (uintjie) pest. VII, 2  
A survey of the habits of growth, propagation and control of nut-  
grass. *Farm. S. Africa* 19, 1944 (11-20).
- 632.554.22 : 631.432.2 Davis, C. H.** Response of *Cyperus* V, 5  
*rotundus* L. to five moisture levels. *Plant Physiol.* 17, 1942 (311-316).
- 632.554.22 : 631.51 - Smith, E. V. ; Mayton, E. L.** Nut grass V, 3  
eradication studies : III The control of nut grass, *Cyperus rotundus*  
L., on several soil types by tillage. *J. Amer. Soc. Agron.* 34, 1942  
(151-159).
- 632.554.22 : 631.51 - Davis, C. H. ; Hawkins, R. S.** Eradi- VII, 2  
cation and control of nut grass. *Ariz. Agric. Expt. Sta. Bull.* 189,  
1943, pp. 20. E.S.R. 89 (444).
- 632.566.9 Lebedev, F. K.** The biological peculiarities and IV, 5  
control of *Stellaria media* L. *Sov. Bot.* No. 1 1940 (63-69). Herb.  
Abs. 11 (439).
- 632.573.6 Syme, P. S.** Eradication of gorse. N.Z. J. Agric. VII, 3  
67, 1943 (95-96). Herb. Abs. 14 (50).
- 632.573.6 Brett, P. G. C.** The eradication of camel thorn. VII, 4  
*Farm. S. Africa* 19, 1944 (337-339).
- 632.575.7 Tinline, M. J.** Eradication of leafy spurge. *Canada*  
*Dept. Agric. Pub.* 710, 1940, pp. 8.
- 632.585 Costello, D. F.** Pricklypear control on short-grass VII, 3  
range in the central Great Plains. *U.S.D.A. Leaflet* 210, 1941, pp. 6.
- 632.588.1 Imperial Agricultural Bureaux.** *Imperata cylin-*  
*drica* : taxonomy, distribution, economic significance and control.  
*Imp. Agric. Bur. Joint Pub.* 7, 1944, pp. 63.
- 632.591.24 Feucht, O.** Result of two experiments of controlling IV, 5  
heather in pine stands in Nordschwarzwald. *Allg. Forst- u.*  
*Jagdztg.* 116, 1940 (163-164). Biol. Abs. 15 (991).
- 632.594.2 Bakke, A. L.** The use of tetrachlorethane in the IV, 6  
eradication of the European bindweed. *J. Amer. Soc. Agron.* 33,  
1941 (759-761).
- 632.594.2 Bakke, A. L.** Control and eradication of European VII, 4  
bindweed. *Iowa Agric. Expt. Sta. Bull.* 1961, 1944 (939-960).
- 632.594.2 : 631.51 Konurov, I. G.** The system of cutting IV, 2  
*Convolvulus arvensis* L. on fallows. *Dokl. Akad. S.-Kh. Nauk* No. 19,  
1939 (3-9). Herb. Abs. 10 (376).
- 632.594.2 : 631.51 Smith, C. W.** Cultural control of bindweed. IV, 2  
*Agric. Engng.* 21, 1940 (468).
- 632.594.2 : 631.51 Frazier, J. C.** Influence of time of culti- V, 4  
vation on the control of field bindweed, *Convolvulus arvensis* L.  
*Trans. Kans. Acad. Sci.* 44, 1941 (164-168). Biol. Abs. 16 (983).
- 632.594.2 : 631.86 Gontsev, A. F.** Viability of the seeds of IV, 2  
dodder (*Cuscuta*) in manure. *Dokl. Akad. S.-Kh. Nauk* No. 10, 1940  
(29-32). [R.]
- 632.594.2 : 632.954 Helgeson, E. A.** Bindweed control by V, 6  
sodium arsenate, borax, and sodium chlorate. *N. Dak. Agric. Expt.*  
*Sta. Bimo. Bull.* 4, 1942 (14-15). E.S.R. 87 (57).
- 632.594.2 : 632.954.8 - Timmons, F. L.** Results of bindweed V, 2  
control experiments at the Fort Hays Branch Station, Hays, Kansas,  
1935 to 1940. *Kans. Agric. Expt. Sta. Bull.* 296, 1941, pp. 50.



## BIBLIOGRAPHY OF SOIL SCIENCE

- V, 3    **632.594.2 : 632.954.8**—Helgeson, E. A. Control of field bindweed by dry chlorates. *N. Dak. Agric. Expt. Sta. Bimo. Bull.* 4, 1941 (7-8). E.S.R. 86 (325).
- VI, 4    **632.594.91 : 632.954.8**—Griffith, A. L. The control of *Lantana* by sodium chlorate spray. *Indian Forester* 67, 1941 (107-114). C.A. 35 (5242).
- V, 6    **632.599.8**—Greenham, C. G.; Wilkinson, T. Studies on chemical weed-killers with special reference to skeleton weed. 4. Further spray trials and toxicity investigations with a note on translocation. *Aust. J. Coun. Sci. Indust. Res.* 15, 1942(154-161).
- VI, 1    **632.599.8**—Radel, L. H. Cape Weed control. *Tasm. J. Agric.* 13, 1942 (79-80).
- VII, 2    **632.599.8**—Thompson, F. B. Chemical control of ragwort. *N.Z. J. Sci. Tech.* 23, 1942 (337A-346A).
- 632.599.8**—Fricke, E. F. Ragwort. *Tasm. J. Agric.* 15, 1944 (1-9).
- 632.599.8 : 581.144.2**—Keil, G. The root system of dandelion. A study of the root type as affected by the soil. *Beih. Bot. Ch. A.* 60, 1940 (57-96). Herb. Abs. 12 (29).
- IV, 2    **632.599.8 : 631.51**—Andrianov, M. I. Extermination of *Cirsium setosum* M.B. on fallows. *Sotsial. Zern. Khoc.* No. 3, 1938 (96-108). Herb. Abs. 10 (376).
- 632.599.8 : 631.589**—Pechanec, J. F.; Stewart, G. Sagebrush burning—good and bad. *U.S.D.A. Farm. Bull.* 1948, 1944, pp. 32.
- V, 3    **632.651.6 : 631.416**—Puh, Y. C. Beneficial influence of earthworms on some chemical properties of soil. *Contr. Biol. Lab. Sci. Soc. China* 15, 1941 (147-155). B.C.A.B. III, 1942 (5). E.S.R. 86 (158).
- V, 3    **632.651.6 : 631.445.11**—Dadykin, V. P. Activity of earth worms in soils of the extreme North. *Pedology* No. 4, 1941 (42-47). [R.]
- V, 5    **632.651.6 : 631.48**—Keith, A. A postscript to Darwin's "Formation of vegetable mould through the action of worms." *Nature* 149, 1942 (716-720).
- V, 4    **632.651.6 : 634.989.84**—Lindquist, B. Investigations of the importance of some Scandinavian earthworms for the decomposition of broadleaf litter and for the structure of mull. *Svenska Skogs- Foren. Tidkr.* 39, 1941 (179-242). Biol. Abs. 16 (565). [Sw. g.]
- 632.7**—Miles, H. W. Land fertility and the wireworm problem. *J. Yorks. Agric. Soc.* 1939 (53-69).
- 632.7**—Thomas, C. A. The biology and control of wireworms. A review of the literature. *Pa. Agric. Expt. Sta. Bull.* 392, 1940., pp. 90. C.A. 34 (7518).
- IV, 6    **632.7**—Finney, D. J. Wireworm populations and their effect on crops. *Ann. Appl. Biol.* 28, 1941 (282-295).
- 632.7**—Jary, S. G. Wireworms and crop production. *Ann. Appl. Biol.* 29, 1942 (150-155). Herb. Abs. 12 (261).
- V, 6    **632.7**—Jones, E. W.; Shirck, F. H. The seasonal vertical distribution of wireworms in the soil in relation to their control in the Pacific Northwest. *J. Agric. Res.* 65, 1942 (125-142).

# FERTILIZERS AND GENERAL AGRONOMY

- 632.7—Journal of the Ministry of Agriculture.** Wireworms and newly ploughed grassland. A report from the Advisory Entomologists' Conference. *J. Min. Agric.* 50, 1943 (102-105).
- 632.7 : 546.23—Neiswander, C. R. ; Morris, V. H.** Introduction of selenium into plant tissues as a toxicant for insects and mites. *J. Econ. Ent.* 33, 1940 (517-525). *Biol. Abs.* 14 (1633). C.A. 34 (7058). IV, 2
- 632.7 : 546.23—Morris, V. H. ; Neiswander, C. R. ; Sayre, J. B.** Toxicity of selenium-containing plants as a means of control for red spiders. *Plant Physiol.* 16, 1941 (197-202). R.A.E. 29 (275).
- 632.7 : 631.4—Gilliarov, M. S.** Influence of soil conditions on soil pests. *Pedology* No. 9, 1939 (121-137). [R.e.] IV, 1
- 632.7 : 631.415.1—Grinfel'd, E. K.** The effect of ants on the reaction of the soil. *Zool. Zh.* 20, 1941 (100). *Biol. Abs.* 18 (229). VII, 2
- 632.7 : 631.42—Bennett, S. H. ; Kearns, H. G. H.** A method of washing out wireworms from soil samples. *Long Ashton Agric. Hort. Res. Sta. Ann. Rept.* 1942 (49-50).
- 632.7 : 631.458—Dick, R. D.** Observations on insect-life in relation to tussock-grassland deterioration. *N.Z. J. Sci. Tech.* 22, 1940 (19A-29A).
- 632.7 : 631.51—Schwerdtfeger, F.** The control of cockchafer grubs by ploughing. *Deut. Forst.* 22, 1940 (337-339). *For. Abs.* 3 (170). [G.] V, 1
- 632.7 : 631.51—Munro, J. A. ; Telford, H. S.** Grasshopper control aided by tillage methods. *N. Dak. Agric. Expt. Sta. Bull.* 309, 1942, pp. 14. E.S.R. 87 (695). VI, 3
- 632.7 : 631.51—Kulash, W. M.** The ecology and control of wireworms in the Connecticut River Valley. *J. Econ. Ent.* 36, 1943 (689-693). VII, 2
- 632.7 : 631.51—Spawn, G. B. ; McMurtrey, M. S.** Tillage for grasshopper control. *Soil Conservation* 9, 1943 (53-56). VII, 1
- 632.7 : 631.515—Smirnov, E. S.** Mechanical control of the larvae and pupae of synanthropic flies. *Med. Parasitol.* 11, 1942 (97-105). R.A.E. 32B (119). [R.] VII, 4
- 632.7 : 631.58—Nettles, W. C.** Effects of substitute crops and rotations on wireworm control. *J. Econ. Ent.* 33, 1940 (644-646). R.A.E. 29 (253).
- 632.7 : 631.582 : 631.459—Wilbur, D. A. ; Fritz, R. F. ; Painter, R. H.** Grasshopper problems associated with strip cropping in western Kansas. *J. Amer. Soc. Agron.* 34, 1942 (16-29).
- 632.7 : 631.61—Annand, P. N.** Recent changes in agriculture and their effect on insect problems. *J. Econ. Ent.* 33, 1940 (493-498). *Herb. Abs.* 10 (355). IV, 2
- 632.7 : 631.61—Glick, P. A. ; Ewing, K. P.** Studies of insect damage to cotton with reference to soil-conservation practices. *J. Econ. Ent.* 34, 1941 (737-741). *Biol. Abs.* 16 (1021).
- 632.7 : 631.67—Lane, M. C.** Wireworms and their control on irrigated lands. *U.S.D.A. Farm. Bull.* 1866, 1941, pp. 21. IV, 5
- 632.7 : 631.833.3—Schaefferenberg, B.** Can wireworms be controlled by kainite? Results of an investigation in dry and moist situations. *Forsch.Dienst.* 17, 1944 (92-95). [G.] VII, 4

# BIBLIOGRAPHY OF SOIL SCIENCE

- VII, 4     **632.7:632.181—Schaerffenberg, B.** The effect of inundation on wireworms. I. Investigations with elaterid larvae, *ForschDienst.* 17, 1944 (143-145). [G.]
- V, 4     **632.732:34—Clark, A. F.** Termite legislation in New Zealand. *N.Z. J. Sci. Tech.* 23, 1941 (233-323).
- 632.732:631.452 Kalshoven, L. G. E.** Influence of the local macroscopic fauna, especially the termites, on soil fertility. *Tectona* 34, 1941 (568-582). For Abs. 3 (283). [Du.]
- 632.732:631.452 Nigerian Forester.** Termites and soil fertility. *Niger Forester* 1, No. 2, 1941 (8-11).
- 632.732:631.452 Pendleton, R. L.** Some results of termite activity in Thailand soils. *Thai Sci. Bull.* 3, No. 2, 1941 (29-53). [E.]
- 632.732:631.452 Pendleton, R. L.** Importance of termites in modifying certain Thailand soils. *J. Amer. Soc. Agron.* 34, 1942 (340-344).
- VI, 4     **632.732:631.452 Adamson, A. M.** Termites and the fertility of soils. *Trop. Agric. Trin.* 20, 1943 (107-112).
- IV, 2     **632.732:632.953 Smith, M. W.** Diphenylamine promising as soil poison against subterranean termites. *J. Econ. Ent.* 32, 1939 (597-598). Emp. Cott. Grow. Rev. 17 (121).
- IV, 6     **632.77:631.452 Staples, R. R.** Anti-tsetse clearing and land use. *E. Afric. Agric. J.* 7, 1941 (48-50).
- IV, 6     **632.77:633.2.03-1.5 Hornby, H. E.** Pasture management in relation to tsetse reclamation. *E. Afric. Agric. J.* 7, 1941 (51-55).
- 632.951.22:631.432.3 Hagan, R. M.** Movement of carbon disulfide vapor in soils. *Hilgardia* 14, 1941 (83-118). E.S.R. 86 (297).
- VI, 4     **632.951.23 Scott, D. J., Jr.; Karr, E. H.** The influence of insecticides added to soils on growth and yield of certain plants. *J. Econ. Ent.* 35, 1942 (702-708). Hort. Abs. 13 (54).
- VI, 4     **632.951.23:635 Fleming, W. E.; Baker, F. E.; Koblitsky, L.** Effect of lead arsenate in soil on vegetables. *J. Econ. Ent.* 36, 1943 (231-233).
- V, 1     **632.953 Chitwood, B. G.** Soil treatments with volatile liquids for control of nematodes. *Phytopath.* 31, 1941 (818-821).
- 632.953 Crafts, A. S.; Bruce, H. D.; Raynor, R. N.** Plot tests with chemical soil sterilants in California. *Calif. Agric. Expt. Sta. Bull.* 648, 1941, pp. 25. Biol. Abs. 15 (1491).
- VI, 3     **632.953 Carter, W.** A promising new soil amendment and disinfectant. *Science* 97, 1943 (383-384). *Trop. Agric. Trin.* 20, 1943 (187).
- VII, 2     **632.953—Godfrey, G. H.; Young, P. A.** Soil fumigation for plant disease control. *Tex. Agric. Expt. Sta. Bull.* 628, 1943, pp. 40.
- VII, 2     **632.953—Western, J. H.; Stewart, R.** The effect of a chemical soil sterilizing agent on the subsequent development of tomato plants. *Ann. Appl. Biol.* 30, 1943 (370-372).
- VII, 4     **632.953 Tam, R. K.; Clark, H. E.** The action of calcium cyanide as a soil disinfectant. *Soil Sci.* 57, 1944 (359-365).
- VII, 2     **632.953:546.13—Pollakov, A. A.** The reaction of chlorine with the soil during disinfection. *Sovet. Vet.* No. 10, 1940 (47-52). C.A. 37 (6391).

# FERTILIZERS AND GENERAL AGRONOMY

- 632.953 : 547.414.8**—Gurlev, A. S. Chloropicrin for increasing the yields of vegetables. *Gedroiz Inst. Fert. Use of Disinfectants for Increasing Yields* 1939 (140-154). C.A. 36 (5603). VI, 2
- 632.953 : 547.414.8** Korab, I. I. ; Butovsky, A. P. Partial sterilization of beet-sick soils with chloropicrin. *Gedroiz Inst. Fert. Use of Disinfectants for Increasing Yields* 1939 (155-173). C.A. 36 (5604). VI, 2
- 632.953 : 547.414.8**—Lebedev, F. K. ; Zavalova, E. I. The effect of chloropicrin on weeds. *Gedroiz Inst. Fert. Use of Disinfectants for Increasing Yields* 1939 (188-195). C.A. 36 (5604). VI, 2
- 632.953 : 547.414.8** Gunesch, W. E. Tear gas treatment of soil. *Canning Agr.* 23, 1942 (272). R.A.M. 21 (423). VI, 1
- 632.953 : 547.414.8**—Kligman, A. M. Control of fungi in mushroom casing soil by sterilization with chloropicrin. *Phytopath.* 32, 1942 (978-985). VI, 2
- 632.953 : 547.414.8** Leukel, R. W. Chloropicrin as a disinfectant for plant beds. *Phytopath.* 32, 1942 (1034-1036). VI, 2
- 632.953 : 547.414.8** Smith, J. B. ; Howard, F. L. Response of Cos or Romaine lettuce to chloropicrin soil treatment, phosphate, and lime. *Proc. Amer. Soc. Hort. Sci.* 40, 1942 (552-556). C.A. 36 (7212). R.A.M. 22 (7). VI, 2
- 632.953 : 547.414.8** McLaughlin, J. H. ; Melhus, I. E. The response of some field crops on soil treated with chloropicrin. *Iowa St. Coll. J. Sci.* 17, 1943 (213-220). VI, 2
- 632.953 : 547.414.8**—Taylor, A. L. Soil fumigation with chloropicrin for control of the root knot nematode, *Heterodera marioni*. *Phytopath.* 33, 1943 (1166-1175). VII, 2
- 632.953 : 547.414.8** Wilson, J. D. Influence of soil type and temperature on rate of escape of chloropicrin. *Ohio Agric. Expt. Sta. Bmo. Bull.* 28, 1943 (38-41). VII, 1
- 632.953 : 631.414.3** Chisholm, R. D. ; Koblitsky, L. Sorption of methyl bromide by soil in a fumigation chamber. *J. Econ. Ent.* 36, 1943 (549-551). C.A. 38 (447). VII, 2
- 632.953 : 631.416.1** Tam, R. K. ; Clark, H. E. Effect of chloropicrin and other soil disinfectants on the nitrogen nutrition of the pineapple plant. *Soil Sci.* 56, 1943 (245-261). VII, 1
- 632.953 : 631.423.4** Chisholm, R. D. ; Koblitsky, L. Determination of paradi-chlorobenzene in soil. *J. Assoc. Off. Agric. Chem.* 26, 1943 (273-277). VI, 4
- 632.954** Hance, F. E. The factor of synergism in chemical weed control. (A consideration of some of the other problems of weed eradication). *Hawaii. Plant. Rec.* 44, 1940 (263-272). IV, 2
- 632.954**—Voicehovich, P. G. Control of weeds by iron sulphate. *Soviet. Agron.* No. 5, 1940 (79-80). Herb. Abs. 13 (239). VII, 2
- 632.954**—Westgate, W. A. ; Raynor, R. N. A new selective spray for the control of certain weeds. *Calif. Agric. Expt. Sta. Bull.* 634, 1940, pp. 36. Biol. Abs. 14 (1196). IV, 1
- 632.954**—Marcovitch, S. Sodium fluoride as a herbicide. *J. Amer. Soc. Agron.* 33, 1941 (367). IV, 5
- 632.954**—Harris, L. E. ; Hyslop, G. R. Selective sprays for weed control in crops. *Oreg. Agric. Expt. Sta. Bull.* 403, 1942, pp. 31. C.A. 37 (718). Biol. Abs. 17 (1532). VI, 4

## BIBLIOGRAPHY OF SOIL SCIENCE

- VII, 2    **632.954—Fromm, F.** The chemical control of weeds. IV. Sulphamic acid as a herbicide. *Cienc. Téc.* 1, 1943 (69-70). C.A. 37 (4852).
- VII, 2    **632.954—Litzenberger, S. C.** The effectiveness of borax and sodium chlorate-borax combinations for the control of perennial weeds. *Mont. Agric. Expt. Sta. War Circ.* 2, 1943, pp. 11. E.S.R. 89 (444).
- VI, 3    **632.954—Pavlychenko, T. K.** Herbicidal action of chemicals on perennial weeds. *Sci. Agric.* 23, 1943 (409-420).
- 632.954 : 577.15.04—Hamner, C. L. ; Tukey, H. B.** The herbicidal action of 2, 4 dichlorophenoxyacetic acid and 2, 4, 5 trichlorophenoxyacetic acid on bindweed. *Science* 100, 1944 (154-155).
- VI, 3    **632.954.1—Hickman, C. J. ; Bennett, S. H.** Weed destruction in onions by means of sulphuric acid. *Woods. Agric. Chron.* 9, 1941 (197-199). C.A. 36 (864).
- 632.954.1—Blackman, G. E.** Weed control in horticultural crops by sulphuric acid spraying. *J. Min. Agric.* 49, 1943 (219-222).
- V, 2    **632.954.6—Beling, R. W. ; Utsch, W. ; Pfingsten, E.** The active agent in weed control with calcium cyanamide. *Bodenk. Pfl. Ernähr.* 19, 1940 (201-218). *Biol. Abs.* 15 (2269). [G.]
- 632.954.6—Makkus, W.** Theory and practice of the use of cyanamide to control weeds in winter cereals. *Mitt. Landw.* 56, 1941 (218-220). *Forsch. Dienst.* 12 (37). [G.]
- IV, 5    **632.954.6—Osvald, H.** The effect of cyanamide on weeds in their early stages of development. *Landmannen* 25, 1941 (257-259, 267, 281-284). [Sw.]
- V, 5    **632.954.6—Beling, R. W.** Further experiments in the control of weeds with calcium cyanamide. *Forsch. Dienst.* 13, 1942 (44-52). [G.]
- IV, 5    **632.954.8—Schwendiman, A.** The toxicity and decomposition of sodium chlorate in soils. *J. Amer. Soc. Agron.* 33, 1941 (522-537).
- IV, 6    **632.954.8—Thornton, B. J.** Sodium chlorate treatment in late summer will control noxious weeds in small areas. *Colo. Farm Bull.* 3, No. 3, 1941 (6-8).
- VI, 3    **632.954.8—Svenska Vall- och Mosskulturföreningens Kvartalsskrift.** Chlorate as a soil improver. Promising experiments in woodlands. *Svenska Vall- o. MosskFören. Kvartalsskr.* 4, 1942 (81-83). *For. Abs.* 4 (215). [Sw.]
- V, 4    **632.954.8 : 546.881—Bates, G. H.** Vanadium pentoxide as a catalyst for sodium chlorate in weed destruction. *Nature* 148, 1941 (753). *Hort. Abs.* 12 (29).
- VI, 3    **632.954.8 : 546.881—Duncaster, E. A.** Catalysts for sodium chlorate in weed destruction. *Nature* 150, 1942 (737-738). B.C.A.B. III, 1943 (48).
- V, 2    **632.954.8 : 631.415.1—Hurd-Karrer, A. M.** Chlorate toxicity and persistence in relation to soil reaction. *J. Agric. Res.* 63, 1941 (481-494).
- IV, 4    **632.954.8 : 631.416.13—Helgeson, E. A.** Nitrates in relation to the toxicity of sodium chlorate. *N. Dak. Agric. Expt. Sta. Bull.* 3, 1940 (9-10). E.S.R. 84 (184).

## FERTILIZERS AND GENERAL AGRONOMY

- 632.954.8 : 631.416.13**—Hurd-Karrer, A. M. The inhibiting effect of nitrate on chlorate toxicity. *Amer. J. Bot.* 28, 1941 (197-206). IV, 4
- 632.954.8 : 631.453**—Harvey, W. A. Toxicity of sodium chlorate in three Yakima Valley soils. *N.-W. Sci.* 14, No. 4, 1940 (91). E.S.R. 84 (739). IV, 5
- 632.954.8 : 631.453**—Pizer, N. H.; Shea, M. The removal of chlorate from soil and porous materials. *J. Soc. Chem. Indust.* 60, 1940 (247-248). V, 1
- 632.954.8 : 631.453**—Rosenfels, R. S.; Crafts, A. S. Chlorate distribution and the effect of nitrate concentration on chlorate toxicity in soil columns. *Hilgardia* 14, 1941 (71-79). E.S.R. 86 (297). V, 3
- 632.954.8 : 631.453**—Uverud, H. The duration of the toxic action of sodium chlorate in soils. *Tidsskr. Norske Landbr.* 49, 1942 (3-9). C.A. 37 (4513). VII, 2
- 632.954.8 : 631.453**—Nelson, R. T. Studies of microbial activity, chlorate reduction, and chlorate toxicity in soils treated with sodium chlorate. *J. Agric. Res.* 68, 1944 (221-237). VII, 3

### 633.1 CEREALS

- 633.1 : 546.23**—Stanford, G. W.; Olson, O. E. The effect of low concentrations of selenium upon the growth of grain. *Proc. S. Dak. Acad. Sci.* 19, 1939 (25-31). E.S.R. 83 (748).
- 633.1 : 546.27**—Schropp, W. Boron and graminaceous plants. *ForschDienst.* 10, 1940 (138-160). [G.]
- 633.1-1.4 : 581.192**—Stubblefield, F. M.; DeTurk, E. E. The composition of corn, oats, and wheat as influenced by soil, soil treatment, seasonal conditions, and growth. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (120-124). IV, 6
- 633.1-1.58**—Garner, F. H. Corn after corn. *J. Min. Agric.* 48, 1941 (63-65).
- 633.1-1.58 : 581.192**—Fagan, T. W.; Jones, E. T.; Ashton, W. M. The yield and chemical composition of cereals under different systems of management. *Welsh J. Agric.* 17, 1943 (103-107). E.S.R. 90 (328).
- 633.1-1.81 : 581.192**—Baumeister, W. Pot experiments on the effect of fertilization with nitrogen and potash on the formation of grain in spring cereals. *ForschDienst. Sonderh.* 15, 1941 (53-57). C.A. 38 (2155).
- 633.1-1.81 : 581.192**—Pflaff, C.; Keese, H. The effects of water and potash supply on protein formation in barley. *Bodenk. PflErnähr.* 23, 1941 (152-200). [G.] IV, 6
- 633.1-1.81 : 581.192**—Schmitt, L.; Schineis, W. Contributions on the question of the effect of water and potash supply on the protein-forming capacity of some varieties of barley. *Bodenk. PflErnähr.* 23, 1941 (160-186). [G.]
- 633.1-1.81 : 581.192**—Schropp, W.; Arenz, B. Pot and field experiments on the effects of various fertilizer combinations on yield and protein formation of spring barley receiving various levels of water supply. *Bodenk. PflErnähr.* 23, 1941 (201-225). [G.] IV, 6

## BIBLIOGRAPHY OF SOIL SCIENCE

- 633.1-1.81 : 581.192 : Scharrer, K.** Fertilization and quality of grain and forage plants. *ForschDienst, Sonderh.* 16, 1942 (146-151). C.A. 37 (3547).
- VI, 4 **633.1-1.81 : 581.192 : Nehring, K.** The influences of water and nutrient supply on protein formation in cereals. Fifth communication. The influence of water and nitrogen supply on protein formation in oats. *Bodenk. PflErnähr.* 30, 1943 (208-230). [G.]
- IV, 6 **633.1-1.811.1 : Iwata, T. ; Okuda, A.** The influence of retarded nitrification on the growth of barley and wheat. *J. Imp. Agric. Expt. Sta. Nisigahara* 3, 1940 (351-364). [J.e.]
- 633.1-1.811.1 : Burgevin, H.** Uptake and utilization of nitrogen by cereal crops. *C. R.* 212, 1941 (569-571). [F.]
- IV, 2 **633.1-1.816.2 : Gudkova, E. P.** Fractional application of fertilizers for cereals. *Trudy Inst. S.-S.-Zem. Khoz.* No. 5, 1939 (65-87). *Pedology* No. 12, 1939 (112).
- VII, 2 **633.1-1.816.23 : Schmitt, L.** The top-dressing of winter cereals. *Mitt. Landw.* 57, 1942 (121-123). C.A. 37 (3871).
- VII, 2 **633.1-1.816.3 : Rozhdestvensky, B. N.** Side-dressing winter and spring cereals. *Khm. Sel'sk. Zemel.* No. 2, 1941 (11-17). C.A. 37 (495).
- VII, 4 **633.1-1.816.3 : Lewis, A. H. ; Strickland, A. G.** The placement of fertilizers. II. Cereals. *J. Agric. Sci.* 34, 1944 (73-75).
- 633.1-1.84 : 581.192 : Grigor'ev, L. P.** The effect of nitrogen nutrition on the content of nitrogen in the leaves and the accumulation of the dry matter of spring wheat. *Trudy Perm. S.-Kh. Inst.* 7, No. 4, 1939 (179-191). C.A. 37 (3125).
- 633.1-1.84 : 581.192 : Nehring, K.** The effect of late applications of nitrogen on protein formation by oats and spring wheat. *Bodenk. PflErnähr.* 18, 1940 (291-304). C.A. 35 (559).
- IV, 4 **633.1-1.84 : 581.192 : Nehring, K. ; Schramm, W.** Biological value of the protein of different kinds of barley for growing pigs and the effect of nitrogenous fertilizers. *Biol. Ztg.* 12R, 1940 (478-500). C.A. 35 (1565).
- IV, 4 **633.1-1.84 : 581.192 : Optiz, K.** Increasing protein production by spring barley through nitrogen fertilization. *Bodenk. PflErnähr.* 17, 1940 (340-358). *Biol. Abs.* 15 (564). C.A. 34 (8145). [G.]
- V, 3 **633.1-1.84 : 581.192 : Scharrer, K.** Time of application of nitrogen fertilizers in cereal growing. *Angew. Chem.* 53, 1940 (277). *Biol. Abs.* 16 (471).
- VII, 1 **633.1-1.84 : 581.192 : Selke, W.** The effect of supplemental late nitrogen applications on the yield and quality of crops. *Bodenk. PflErnähr.* 20, 1940 (1-50). C.A. 37 (5817).
- V, 1 **633.1-1.84 : 581.192 : Brüne, F.** Experiments on the increase of protein content of cereals through late application of additional nitrogenous fertilizers on Selke's plan. *Bodenk. PflErnähr.* 24, 1941 (1-5). [G.]
- V, 1 **633.1-1.84 : 581.192 : Dannhardt, H.** Late application of nitrogen to increase the protein content of fodder cereals. *Drat. Landw. Pr.* 68, No. 8, 1941 (63-64). *ForschDienst.* 11 (93). [G.]
- V, 1 **633.1-1.84 : 581.192 : Keese, H.** Field experiments on the increase of protein content of cereals through late application of additional nitrogenous fertilizers. *Bodenk. PflErnähr.* 24, 1941 (5-11). [G.]

# FERTILIZERS AND GENERAL AGRONOMY

- 633.1-1.84 : 581.192 Kristiansson, S.** Fertilizing for quality with nitrogen. *Lautmannen* 25, 1941 (323-326). [Sw.] IV, 5
- 633.1-1.84 : 581.192 —Pielen, L.** Experiments on the effects of additional nitrogen, applied late and at various dates and rates, on the percentage and yield of protein in oats, spring barley and spring wheat. *Bodenk. PflErnähr.* 24, 1941 (12-24). [G.] V, 1
- 633.1-1.84 : 581.192 —Schropp, W. ; Arenz, B.** Field experiments relating to the increase of protein in cereals receiving additional nitrogen in late applications. *Bodenk. PflErnähr.* 24, 1941 (24-34). [G.] V, 1
- 633.1-1.84 : 581.192 —Selke, W.** Supplemental, late N fertilization of cereals. *Mitt. Landw.* 56, 1941 (294-296). C.A. 38 (1598). VII, 3
- 633.1-1.84 : 581.192 Alten, F. ; Gottwick, R.** The influence of late applications of nitrogen on the protein content of grain crops. *Ernähr. Pfl.* 38, 1942 (49-52, 61-63). *Biol. Abs.* 17 (2190). [G.] VII, 1
- 633.1-1.84 : 581.192 —Fröder, K.** Criticism of some previously published southern Scandinavian research on the late nitrogen fertilizing of cereals as a factor improving quality. *Pflanzenbau* 19, 1942 (16-32, 33-42). C.A. 38 (2781). VII, 4
- 633.1-1.84 : 581.192 —Schmitt, L. ; Schineis, W.** Field trials on the enrichment of cereals in protein by Selke's method of supplementary late dressing with nitrogenous fertilizers. *Bodenk. PflErnähr.* 26, 1942 (137-150). [G.] V, 5
- 633.1-1.84 : 581.192 —Weigert, J. ; Schaeffler, H.** Results of two years' field trials of the effect of additional late dressings of nitrogenous fertilizers on the yield and quality of spring wheat, spring barley and oats. *Bodenk. PflErnähr.* 26, 1942 (151-179). [G.] V, 5
- 633.1-1.84 : 581.192 Glesecke, F. ; Wienhues, F.** Field trials on the effect of different levels of nitrogenous manure applied at different times on the yield and protein content of spring barley and winter rye. *Bodenk. PflErnähr.* 30, 1943 (306-316). [G.] VII, 3
- 633.1-1.84 : 581.192 Kappen, H. ; Beling, R. W.** Additional late cyanamide fertilizing and the nitrogen content of cereal grains. *Bodenk. PflErnähr.* 32, 1943 (155-163). [G.] VII, 3
- 633.1-1.84 : 581.192 König, F.** Pot experiments on the effect of late applications of nitrogen on the grain and protein yields of wheat and barley. *Bodenk. Ernähr.* 30, 1943 (273-288). [G.] VI, 2
- 633.1-1.84-1.816.2 Selke, W.** The influence of phosphoric-acid and potash fertilizers on the effect of late nitrogen applications and the effect of late phosphoric-acid and potash applications on cereals. *Bodenk. PflErnähr.* 20, 1940 (257-269). C.A. 36 (4952). VI, 2
- 633.1-1.847.2 Oknina, E. Z.** Experiments on "inoculation" of cereal seeds with legume nodule bacteria. *C.R. Acad. Sci. (U.S.S.R.)* 27, 1940 (624-627). [G.] V, 2
- 633.1-2.19 : 546.47—Millikan, C. R.** Symptoms of zinc deficiency in wheat and flax. *J. Aust. Inst. Agric. Sci.* 8, 1942 (33-35). B.C.A.A. III, 1942 (722). V, 6
- 633.1-2.19 : 546.56 —Teakle, L. J. H. ; Thomas, I. ; Turton, A. G.** Experiments with micro-elements for the growth of crops in Western Australia. 1. Experiments in the wheat belt with cereals. *J. Dept. Agric. W. Aust.* 18, 1941 (70-86). IV, 5



# BIBLIOGRAPHY OF SOIL SCIENCE

- VII, 2    **633.1-2.19 : 546.711**—Gallagher, P. H. ; Walsh, T. The susceptibility of cereal varieties to manganese deficiency. *J. Agric. Sci.* 33, 1943 (197-203).  
           **633.1-2.19 : 546.711**—Gallagher, P. H. ; Walsh, T. Influence of manganese on the growth of cereals. *Proc. Roy. Irish Acad.* 49B, 1943 (187-200). C.A. 38 (825).
- VII, 3    **633.1-2.4-1.462**—Millikan, C. R. Studies on soil conditions in relation to root-rot of cereals. *Proc. Roy. Soc. Victoria* 54, 1942 (145-195). C.A. 37 (3215).  
           **633.11 : 546.47**—Tokuoka, M. ; Gyo, S. The effect of zinc on the growth of wheat. *J. Sci. Soil Japan* 14, 1940 (587-596). [J.g.]
- VII, 4    **633.11 : 546.47**—Crook, R. Wheat variety and manurial trials—Salisbury and Kaniva. *J. Dept. Agric. Victoria* 42, 1944 (145-146).
- IV, 4    **633.11 : 546.56**—Tokuoka, M. ; Gyo, S. The effect of copper on the growth of wheat. *J. Sci. Soil Japan* 14, 1940 (622-630). [J.g.]
- VI, 3    **633.11 : 546.56**—Teakle, L. J. H. Experiments with micro-elements for the growth of crops in Western Australia. VI. Further results from the use of copper-containing fertilisers in the wheatbelt. *J. Dept. Agric. W. Aust.* 19, 1942 (242-253).
- V, 6    **633.11 : 546.711**—Hely, F. W. ; Ludbrook, W. V. The effects of sodium chloride and two manganese salts on the growth of wheat and its susceptibility to *Ophiobolus graminis* Sacc. *Aust. J. Connc. Sci. Indust. Res.* 15, 1942 (124-128).  
           **633.11 : 633.34**—Vittum, M. T. ; Horrall, N. Effect of unharvested soybean residues on the yield of the succeeding wheat crop at different soil fertility levels. *J. Amer. Soc. Agron.* 36, 1944 (468-469).
- IV, 2    **633.11-1.415.3**—Lobanova, T. A. Influence of soil salinity on wheat yields. *Trudy Inst. Hydrokh.* 22, 1938 (195-210). Pedology No. 12, 1939 (107).  
           **633.11-1.415.8**—Papadakis, J. S. Soil reaction and varietal adaptation of wheat. *Soil Sci.* 52, 1941 (59-61).
- IV, 5    **633.11-1.416.2-1.416.871.1**—Hoon, R. C. ; Dhawan, C. L. ; Madan, M. L. The effect of certain soil factors on the yield of wheat in the Punjab. *Soil Sci.* 51, 1941 (339-349).  
           **633.11-1.432.2**—Liubinaky, N. A. The influence of soil moisture and density of sowing upon the yield of wheat and on the structure of the ear. *Bull. Acad. Sci. (U.S.S.R.) (Cl. Sci. Math.) Sér. Biol.* 4, 1940 (484-494). Biol. Abs. 15 (2074).  
           **633.11-1.432.2**—Miroshnichenko, K. G. Carbohydrate metabolism in wheats under conditions of insufficient soil moisture. *C.R. Acad. Sci. (U.S.S.R.)* 32, 1941 (81-84). E.S.R. 88 (31).  
           **633.11-1.432.2**—Whiteside, A. G. O. Effect of soil drought on wheat plants. *Sci. Agric.* 21, 1941 (320-334).  
           **633.11-1.432.2 : 581.192**—Paull, A. E. ; Anderson, J. A. The effects of amount and distribution of rainfall on the protein content of western Canadian wheat. *Canad. J. Res.* 20C, 1942 (212-227).

# FERTILIZERS AND GENERAL AGRONOMY

- 633.11-1.51—Khoroshavin, B. P.** Deep cultivated arable horizon for winter wheat. *Sborn. Rab. Cheliabinsk. S.-Kh. Opyt. Sta.* 1, 1939 (25-40). [R.] V, 2
- 633.11-1.51—Swarup, L. ; Tambe, G. G. ; Talesara, S. C.** Preparatory cultivation for wheat in Malwa. *Allahabad Farmer* 15, 1941 (38-40). IV, 5
- 633.11-1.51—Crombie, B.** Wheat ripening as influenced by time of sowing and other factors. *Fire J. Dept. Agric.* 37, 1940 (311-353). IV, 2
- 633.11-1.531—Papadakis, J. S.** The relation of the number of tillers per unit area to the yield of wheat and its bearing on fertilizing and breeding this plant: the space factor. *Soil Sci.* 50, 1940 (369-388). C.A. 35 (2264). Biol. Abs. 15 (805). IV, 4
- 633.11-1.58—Bracken, A. F.** Effect of various soil treatments on nitrates, soil moisture and yield of winter wheat. *Soil Sci.* 50, 1940 (175-188).
- 633.11-1.58 : 581.192—Ellis, J. H.** Report on effect of certain cultural and fertility practices on the protein content of wheat. *Sci. Agric.* 23, 1943 (474-495). VI, 4
- 633.11-1.582—Marani, M. ; Goia, G. ; Briolini, M.** Effect of some row crops on the growth of wheat following them. *Ital. Agric.* 79, 1942 (140-142). [I.] VI, 2
- 633.11-1.613—Harper, H. J.** The effect of terrace ridges on the production of winter wheat. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (474-479).
- 633.11-1.67—Frolov, B. A.** Irrigation regime for spring wheat in the semi-arid zones of the Cheliabinsk region. *Sborn. Rab. Cheliabinsk. S.-Kh. Opyt. Sta.* 1, 1939 (131-176). [R.]
- 633.11-1.67—Elliott, A. G.** Wheat under irrigation. *N.Z. J. Agric.* 63, 1941 (11-13). IV, 6
- 633.11-1.81—Mirskova, V. M. ; Tarutina, O. I. ; Sokolova, O. I.** The effect of the relative contents of nitrogen, phosphorus and potassium on the growth and yield of spring wheat. *Trudy Perm. S.-Kh. Inst.* 7, No. 4, 1939 (195-204). C.A. 37 (4846). VII, 2
- 633.11-1.81—Fertiliser, Feeding Stuffs and Farm Supplies Journal.** Manuring of autumn-sown corn. *Fert. Feed. J.* 25, 1940 (363).
- 633.11-1.81 Goppe, G. S.** The effect of mineral fertilizer on yield of winter wheat from areas previously occupied by different crops in the drought-susceptible steppe of the Ukraine. *Vest. S.-Kh. Nauk Agrotekh.* No. 1, 1940 (80-89). Herb. Abs. 13 (214). VII, 2
- 633.11-1.81—Popov, N. V.** Simultaneous application of manure and mineral fertilizers to winter and spring wheat. *Khim. Sotsial. Zemled.* No. 9, 1940 (21-26). [R.] IV, 6
- 633.11-1.81 : 581.192—Gerngross, O.** Quality and ash content of wheat as influenced by fertilization. *Ztschr. Gesam. Getreidew.* 27, 1940 (104-110). C.A. 35 (8187). VI, 3
- 633.11-1.81 : 581.192—Mosolov, I. V.** Peculiarities of protein exchange and mineral nutrition of different varieties of spring wheat. *Khim. Sotsial. Zemled.* No. 6, 1940 (22-27). [R.] IV, 6
- 633.11-1.81 : 581.192—Tymich, V. ; Černý, M.** The effect of basal mineral manuring on the quality and yield of Dobrowitz wheat. *Ztschr. Zuckerindust.* Čsl. 65, No. 7/8, 1941 (34-43). Ernähr. Pfl. 28 (35).

# BIBLIOGRAPHY OF SOIL SCIENCE

- IV, 5    **633.11-1.811**—**Petinov, N. S.**; **Zak, G. A.** The effect of mineral fertilizers on the formation of rudimental ear and the yield of spring wheat. *Dokl. Akad. S.-Kh. Nauk* No. 8, 1940 (17-21). Herb. Abs. 11 (86).
- 633.11-1.811.1**—**Kal'tya, A.** Periodical supply of nitrogen to spring wheat. *C.R. Acad. Sci. (U.S.S.R.)* 29, 1940 (343-346). Herb. Abs. 11 (168).
- V, 2    **633.11-1.811.1** **Bereznitskaia, N. I.** Nitrogen requirement of winter wheat in relation to development. *C.R. Acad. Sci. (U.S.S.R.)* 30, 1941 (186-188). [E.]
- IV, 2    **633.11-1.811.1-1.415.1**—**Demidenko, T. T.**; **Barinova, R. A.** Yield of spring wheat as affected by the dose and form of nitrogen and the pH of the nutrient solution. *C.R. Acad. Sci. (U.S.S.R.)* 27, 1940 (259-263). C.A. 34 (7344). [E.]
- 633.11-1.811.2** **Ovechkin, S. K.** Periodical nutritional supply of phosphates to winter wheat plants. *C.R. Acad. Sci. (U.S.S.R.)* 30, 1941 (350-352). [G.]
- IV, 6    **633.11-1.816.3** **Chernetsky, A. I.** Effect of row placement of fertilizers on yields of winter wheat and barley. *Khim. Sotsial. Zemled.* No. 7, 1940 (51-55). [R.]
- IV, 6    **633.11-1.816.3** **Zabelin, N. A.** Combination of row placement with basal fertilizing and top dressing for winter wheat. *Khim. Sotsial. Zemled.* No. 7, 1940 (48-50). [R.]
- V, 1    **633.11-1.816.3** **Fokeev, P. M.** Time and depth of application of fertilizers for spring wheat in the unirrigated agriculture of the south-east. *Sotsial. Zem. Khoz.* No. 1, 1941 (73-94). [R.]
- V, 1    **633.11-1.816.3** **Fokeev, P. M.** Methods of applying fertilizers to spring wheat. *Sotsial. Zem. Khoz.* No. 2, 1941 (101-108). [R.]
- VI, 2    **633.11-1.83** **Yudin, A. M.** The effect of various forms of potassium on the yield of spring wheat. *Trudy Omsk. S.-Kh. Inst.* 4 17, 1939 (57-73). C.A. 36 (6283).
- 633.11-1.83** : **581.192** **Schreiber, R.** The effects of potash fertilizers of low and high magnesium content on the yield, quality, and potash and magnesium uptake of spring wheat, with special reference to the preponderating anions in the fertilizer materials. *Bodenk. Pfl.Ernahr.* 27, 1942 (134-149). [G.]
- IV, 6    **633.11-1.84-1.816.23** **Alov, A. S.** Spring nitrogen fertilizing of winter wheat. *Khim. Sotsial. Zemled.* No. 2-3, 1940 (57-65). [R.]
- V, 1    **633.11-1.847.2** **Lopteva, A. A.** The effect of inoculation of seed of three spring wheat varieties with nodule bacteria on the yield of grain and straw. *Trudy Vologod. S.-Kh. Inst.* No. 1, 1940 (205-209). Herb. Abs. 11 (207).
- IV, 2    **633.11-1.85-1.816.2** **Lee, C. K.** Variations in yield and composition of the wheat plant as affected by the time of applying phosphatic fertilizers. *J. Amer. Soc. Agron.* 32, 1940 (782-788).
- 633.11-1.85-1.816.2** **Ovechkin, S.** The time factor in phosphate nutrition of spring wheats. *C.R. Acad. Sci. (U.S.S.R.)* 26, 1940 (170-174). E.S.R. 85 (343). Herb. Abs. 11 (169).
- 633.11-1.855**—**Teakle, L. J. H.**; **Carliss, H. G.** Superphosphate requirements for growing wheat in Western Australia. *J. Dept. Agric. W. Aust.* 20, 1943 (1-28).

# FERTILIZERS AND GENERAL AGRONOMY

- 633.11-2.111-1.81--Tiunova, K. P. Effect of fertilizers on the regeneration of winter wheat. *Trudy Inst. Sever. Zern. Khoz.* No. 2, 1939 (61-68). *Pedology* No. 12, 1939 (106).
- 633.11-2.4 Garrett, S. D. The take-all disease of wheat. *Imp. Bur. Soil Sci. Tech. Commun.* 41, 1942, pp. 40.
- 633.11-2.4 : 546.34-- Wortley, W. R. S. The effect of lithium on mildew and wheat. *Trans. Brit. Mycol. Soc.* 23, 1939 (122).
- 633.11-2.4-1.4-- Shen, C. I. Soil conditions and the *Fusarium culmorum* seedling blight of wheat. *Ann. Appl. Biol.* 27, 1940 (323-329). C.A. 34 (7510).
- 633.11-2.4-1.582 Garrett, S. D. Temporary leys and the take-all and whiteheads disease of wheat and barley. *J. Min. Agric.* 47, 1940 (134-135). *Herb. Abs.* 10 (366).
- 633.11-2.4-1.811 Garrett, S. D. Soil conditions and the take-all disease of wheat. VI. The effect of plant nutrition upon disease resistance. *Ann. Appl. Biol.* 28, 1941 (14-18). R.A.M. 20 (250).
- 633.11-2.4-1.811 Stumbo, C. R. ; Gainey, P. L. ; Clark, F. E. Microbiological and nutritional factors in the take-all disease of wheat. *J. Agric. Res.* 64, 1942 (653-665).
- 633.11-2.4-1.821.1 Millikan, C. R. Influence of nutrition on the reaction of wheat to *Uromyces tritici* Kown. *J. Dept. Agric. Victoria* 37, 1939 (302-308, 349-356). C.A. 34 (6750).
- 633.11-2.4-1.821.1 Kurtsov, A. P. Liming soils and the destruction of wheat grains by fusaria. *Khém. Sotsial. Zemled.* No. 1, 1940 (59-62). [R.]
- 633.11-2.4-1.821.1 Angell, H. R. The effects of addition of lime and depletion of soil nutrients on take-all of wheat. *Aust. J. Coun. Sci. Indust. Res.* 16, 1943 (18-27).
- 633.11-2.4-1.83 Wahl, J. The influence of potassium on the resistance of wheat against rust. *Hassach* 21, 1940 (34). [Hb.]
- 633.12-1.5 Hardt. Experiences in the cultivation of buckwheat. *Mitt. Landw.* 56, 1941 (374-375). *ForschDienst.* 13 (39).
- 633.12-1.81 : 581.192 White, J. W. ; Holben, F. J. ; Richer, A. G. Experiments with buckwheat. *Pu. Agric. Expt. Sta. Bull.* 403, 1941, pp. 62.
- 633.13 : 546.56 Rademacher, B. Variation in content, course of assimilation and uptake of copper by oat plants. *Bodenk. PflErnahr.* 19, 1940 (80-108). C.A. 35 (3293). R.A.M. 20 (296). [G.]
- 633.13-1.81 : 581.192 Keese, H. The effect of varying supply of water and nitrogen on protein formation in oats. *Bodenk. PflErnahr.* 30, 1943 (197-207). [G.]
- 633.13-1.81 : 581.192 Keese, H. The effects of varying water and phosphoric-acid supplies upon protein formation in oats. *Bodenk. PflErnahr.* 31, 1943 (282-290). [G.]
- 633.13-1.81 : 581.192 Nehring, K. The effect of nutrient and water supply on protein formation in cereals. Sixth Communication. The effect of phosphoric-acid and water supply on protein formation in oats. *Bodenk. PflErnahr.* 31, 1943 (298-311). [G.]
- 633.13-1.81 : 581.192-- Rauterberg, E. ; Benischke, H. The determination of tyrosin in plant materials by Millon's reagent, and the tyrosin content of oats variously manured. *Bodenk. PflErnahr.* 30, 1943 (317-325). [G.]

## BIBLIOGRAPHY OF SOIL SCIENCE

- VI, 4    **633.13-1.81:581.192—Schmitt, L.; Schinels, W.** The influence of water and nitrogen supply on the protein-forming capacity of different varieties of oats. *Bodenk. PflErnähr.* 30, 1943 (231-249). [G.]
- VII, 3    **633.13-1.81:581.192—Schmitt, L.; Steinberg, I.** The influence of phosphate and water supply on the protein-forming capacities of oat varieties. *Bodenk. PflErnähr.* 33, 1943 (95-113). [G.]
- VI, 4    **633.13-1.81:581.192—Schropp, W.; Arenz, B.** Pot experiments on the effects of various levels of water and nitrogen supply on yield and protein formation in two varieties of oats. *Bodenk. PflErnähr.* 30, 1943 (250-273). [G.]
- VI, 4    **633.13-1.81:581.192—Schropp, W.; Arenz, B.** Field experiments on the effects of various levels of water and nitrogen supply on yield and protein formation of oats. *Bodenk. PflErnähr.* 30, 1943 (289-306). [G.]
- VII, 3    **633.13-1.81:581.192—Schropp, W.; Arenz, B.** Pot experiments on the effect of varying water and phosphoric-acid supply on the yield and protein formation of two varieties of oats. *Bodenk. PflErnähr.* 31, 1943 (291-297). [G.]
- VII, 3    **633.13-1.81:581.192—Schropp, W.; Arenz, B.** Field experiments on the influence of varying water and phosphoric-acid supplies on yield and protein formation of oats. *Bodenk. PflErnähr.* 31, 1943 (312-324). [G.]
- V, 2    **633.13-1.811—Schmid, K.** The effects of potash, nitrogen and water supply on transpiration and assimilation capacity in oats. Participation of potash in the production of tissue material in the higher plants. Part III. *Bodenk. PflErnähr.* 25, 1941 (279-313). [G.]
- VI, 1    **633.13-1.84—Bieberbeck, A.; Keese, H.; Oelsen, H. v.** Nitrogen efficiency in oat culture. *Bodenk. PflErnähr.* 28, 1942 (57-76). [G.]
- V, 1    **633.13-2.19—Gallagher, P. H.; Walsh, T.** Investigations on grey speck disease in oats on some Irish soils. *Proc. Roy. Irish Acad.* 46B, 1941 (143-159). R.A.M. 20 (458).
- V, 6    **633.13-2.19—Hageman, R. H.; McHargue, J. S.; Sherman, G. D., et al.** The production of grey speck of oats in purified sand cultures. *J. Amer. Soc. Agron.* 34, 1942 (731-735).
- VII, 2    **633.13-2.19:546.711—MacLachlan, J. D.** Manganese deficiency in soils and crops. II. The use of various compounds to control manganese deficiency in oats. *Sci. Agric.* 24, 1943 (86-94). C.A. 38 (609). Biol. Abs. 18 (360).
- 633.13-2.19:546.711—Twyman, E. S.** Manganese deficiency in oats. *Nature* 152, 1943 (216). R.A.M. 22 (428).
- 633.13-2.19:546.711—Piper, C. S.** Manganese deficiency in oats. *Nature* 153, 1944 (197). R.A.M. 23 (174).
- V, 1    **633.13-2.19:546.711:631.461—MacLachlan, J. D.** Manganese deficiency in soils and crops. I. Control in oats by spraying; studies of the rôle of soil micro-organisms. *Sci. Agric.* 22, 1941 (201-207).
- 633.14-1.459-1.61—Blackburn, G.** Rye corn and sand-drift control. *J. Dept. Agric. Victoria* 41, 1943 (336).

# FERTILIZERS AND GENERAL AGRONOMY

- 633.14-1.459-1.61—Sims, H. J.** Ryecorn—a cereal for winter grazing and drift control in the Mallee. *J. Dept. Agric. Victoria* 42, 1944 (151-154, 162). VII, 4
- 633.14-1.5—Summerby, R.** Fall rye is useful for autumn pasture. *Macdonald Coll. J.* 3, 1943 (3, 7). VI, 4
- 633.14-1.5 : 355.01—Wibberley, T.** Rye as a war-time crop. *J. Min. Agric.* 48, 1941 (66-69). J.
- 633.14-1.81 : 581.192—Baumeister, W.** The influence of mineral manuring upon yield and composition of spring rye. *Bodenk. Pflernähr.* 17, 1940 (87-89). C.A. 35 (256). *Mezőg. Kutat.* 13 (244).
- 633.15 : 633.2-1.434—Edwards, D. C.** The possibility of establishing grass under maize. *E. Afric. Agric. J.* 6, 1941 (233-235). IV, 4
- 633.15-1.421—Cochran, W. G.** An examination of the accuracy of lattice and lattice square experiments on corn. *Iowa Agric. Expt. Sta. Res. Bull.* 289, 1941 (397-415). F.S.R. 86 (320).
- 633.15-1.432—Titta, G.** Water in soils. III. *Ann. Fac. Agrar. Univ. Pisa* 2, 1939 (210-226). *Biol. Abs.* 16 (218). [Ic.] V, 3
- 633.15-1.5—Gross, E. E.** A compilation of experimental and other data on corn planting and cultivation (revised to include corn spacing and corn fertilizers). *Miss. Agric. Expt. Sta. Bull.* 312, 1938, pp. 58.
- 633.15-1.51—Jones, M. M. ; Beasley, R. P.** Corn tillage studies on rolling Putnam silt loam. *Missouri Agric. Expt. Sta. Bull.* 475, 1943, pp. 12. E.S.R. 90 (163). VII, 3
- 633.15-1.531—Innes, R. F.** The spacing of maize on Jamaica "red dirt" (*terra rossa*) soils. *J. Jamaica Agric. Soc.* 45, 1941 (130-137). IV, 5
- 633.15-1.531—Huelsen, W. A.** Yield of sweet corn in relation to distance and rate of planting. *Ill. Agric. Expt. Sta. Bull.* 487, 1942 (35-104).
- 633.15-1.67—Cordner, H. B.** The influence of irrigation water on the yield and quality of sweet corn and tomatoes with special reference to the time and number of applications. *Proc. Amer. Soc. Hort. Sci.* 40, 1942 (475-481). VI, 2
- 633.15-1.81—Themlitz, R. ; Rinckleben, P.** Manurial trials with maize for grain. *Bodenk. Pflernähr.* 20, 1940 (352-357). *ForschDienst.* 11 (97). [G.]
- 633.15-1.81—Olson, L. C. ; Bledsoe, R. P.** The effect of fertilizer and lime on the yield of corn. *Ga. Expt. Sta. Bull.* 214, 1941, pp. 19.
- 633.15-1.81—Prince, F. S. ; Blood, P. T.** Fertilizers for sweet corn. *N.H. Agric. Expt. Sta. Circ.* 63, 1943, pp. 8. E.S.R. 89 (310).
- 633.15-1.81 : 581.192—Weeks, M. E. ; Fergus, E. N. ; Karmaker, P. E.** The composition of the corn plant grown under field conditions in relation to the soil and its treatment. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (140-146).
- 633.15-1.81 : 581.192—Themlitz, R.** A further contribution to the question of manuring maize grown for grain. *Landw. Jahrb.* 91, 1942 (1004-1011). [G.] VI, 1
- 633.15-1.811—Drake, M.** Nutrient balance in corn growing in Southern States as revealed by Purdue plant tissue tests. *J. Amer. Soc. Agron.* 36, 1944 (1-9). VII, 3

# BIBLIOGRAPHY OF SOIL SCIENCE

- 633.15-1.85 Gericke, S.** The manuring of grain maize with phosphate. *Pflanzenbau* 18, 1941 (76-96). Herb. Abs. 12 (182).
- VI, 4 **633.15-1.85 Bertrand, H. W. R.** The lack of phosphate in Ceylon S.W. zone soil. A chatty experiment with maize. *Trop. Agricult.* 98, No. 2, 1942 (36-39).
- V, 6 **633.15-1.85 Gericke, S.** The utility of phosphate in the cultivation of grain maize. *ForschDienst.* 13, 1942 (330-340). [G.]
- 633.15-1.874 Barros, F.** A comparative study of the effects on yield of corn of some leguminous crops used as green manure. *Philipp. Agricult.* 29, 1940 (142-149).
- VI, 1 **633.15-2 Richardson, J. K.** Studies on root rot of corn in Ontario. *Canad. J. Res.* 20C, 1942 (241-256). R.A.M. 21 (448)
- 633.16-1.5 : 581.192 Meredith, W. O. S. ; Olson, P. J.** Cultural studies with barley. IV. Summary of results for yield and malting quality. *Sci. Agric.* 23, 1942 (237-246).
- VI, 2 **633.16-1.5 : 581.192 Meredith, W. O. S. ; Olson, P. J. ; Rowland, H.** Cultural studies with barley. III. The effects of cultural practices on malting quality. *Sci. Agric.* 23, 1942 (135-153).
- 633.16-1.81 Olson, P. J. ; Meredith, W. O. S. ; Laidlaw, H. C., et al.** Cultural studies with barley. II. Differential responses to fertilizer treatment and rate of seeding with respect to yield. *Sci. Agric.* 22, 1942 (659-673).
- 633.16-1.81 : 581.192 Lüdecke, H. ; Lesch, W. ; Sammet, K.** The influence of various levels of nutrient supply on the yield and composition of barley, with reference to the depression of yield brought about by applying phosphoric acid and potash to the crop on soils of central Germany. *Landw. Jahrb.* 90, 1940 (571-616). *ForschDienst.* 12 (7). [G.]
- IV, 3 **633.16-1.81 : 581.192 Nehring, K.** The influence of water and of nutrient supply upon the protein content of some barley varieties. III. The influence of phosphate supply. *Bodenk. Pfl. Ernähr.* 17, 1940 (331-339). Biol. Abs. 15 (277). [G.]
- IV, 4 **633.16-1.81 : 581.192 Schmitt, L. ; Schineis, W.** The influence of water and phosphoric acid supply on protein-forming ability of different varieties of barley. *Bodenk. Pfl. Ernähr.* 17, 1940 (293-310). C.A. 34 (8148). Biol. Abs. 15 (520). [G.]
- IV, 3 **633.16-1.81 : 581.192 Schropp, W. ; Arenz, B.** Pot experiments on the influence of additional phosphoric acid supply on yield and protein-formation of two varieties of barley grown at various intensities of water supply. *Bodenk. Pfl. Ernähr.* 17, 1940 (319-330). Biol. Abs. 15 (278). [G.]
- 633.16-1.81 : 581.192 Nehring, K.** The influence of nutrient and water supply on protein formation in several varieties of barley. IV. The effect of potash supply. *Bodenk. Pfl. Ernähr.* 23, 1941 (186-200). [G.]
- 633.16-1.81 : 581.192 Scharrer, K. ; Schreiber, R.** The effect of combined potash and magnesium nutrition on the yield, protein content and nutrient uptake of two varieties of barley. *Bodenk. Pfl. Ernähr.* 33, 1943 (182-196). [G.]
- IV, 2 **633.16-1.811 Katsnelson, S. M.** Period of the maximum effectiveness of nutrients for barley. *Dokl. Akad. S.-Kh. Nauk* No. 10, 1940 (11-15). [R.]

# FERTILIZERS AND GENERAL AGRONOMY

- 633.16-1.811 Aslander, A. The influence of soil reaction on Dore and Vega barleys in relation to their nutrient-absorbing capacity. *Kgl. Lantbr. Akad. Tidkr.* 80, 1941 (319-327). [Sw.e.] VI, 4
- 633.16-1.84 : 581.192 Nehring, K. ; Schramm, W. The effect of N fertilization on the formation of protein in various varieties of barley and on its digestibility and biological value. *Bodenk. Pfl. Ernähr.* 20, 1940 (50-68). C.A. 37 (5817).
- 633.16-1.85 : 581.192 Schropp, W. The effect of phosphate on some of the characteristics of quality in spring barley. *Phosphorsäure* 1, 1942 (124-147). C.A. 38 (3406). VII, 4
- 633.17-1.5 Cushing, R. L. ; Kiesselbach, T. A. ; Webster, O. J. Sorghum production in Nebraska. *Neb. Agric. Expt. Sta. Bull.* 329, 1940, pp. 58. E.S.R. 83 (768).
- 633.17-1.5 Heuser, W. ; Schleip, H. Grain and straw yields of millet, especially millet brought back by the German Hindu-Kush expedition, and the value of the crop under practical conditions. *ForschDienst.* 9, 1940 (176-183). [G.]
- 633.17-1.5 Laubscher, F. X. The cultivation of kafir corn. *Farm. S. Africa* 17, 1942 (637-639, 682).
- 633.17-1.5 Clydesdale, C. S. Grain sorghums. *Queensland Agric. J.* 57, 1943 (133-141).
- 633.17-1.582 Myers, H. E. ; Hallsted, A. L. The comparative effect of corn and sorghums on the yield of succeeding crops. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (316-321). VII, 1
- 633.17-1.84 Lehne, I. Cultural technique and nitrogenous manuring of different forms of sorghum on sand soils. *Pflanzenernähr.* 18, 1941 (65-76, 97-128). Herb. Abs. 12 (130).
- 633.18 : 546.56 Tokuko, M. ; Dyo, S. ; Uokawa, H. The effect of copper on the growth of upland rice. *J. Sci. Soil Japan* 15, 1941 (385-392). C.A. 36 (1352).
- 633.18 : 546.711 Tokuko, M. ; Gyo, S. The effect of manganese on the growth of rice plants. *J. Sci. Soil Japan* 14, 1940 (335-344). C.A. 34 (6972).
- 633.18 : 581.144.2 Kuilman, L. W. Root studies on tropical crops. I. Root development and fertility. *Meded. Ag. Proefsta. Landbouw* 48, 1941, pp. 18. [Duc.] V, 2
- 633.18-1.4-1.51 Fu, H. D. ; Wang, T. T. Anchorage of red earths : III. Preliminary observation of morphological change of red earth after rice cultivation. *Soil Mem. Geol. Surv. Kiangsi* No. 3, 1942 (15-20). [Che.] VII, 3
- 633.18-1.416 Hseung, Y. Some chemical properties of paddy soils. *Natl. Geol. Surv. China Spec. Soils Pub.* 4, 1941 (1-22). [E.] IV, 6
- 633.18-1.416 : 581.192 Velasco, J. R. Studies on the nutritive value of Elon-clon rice variety grown in different parts of the Islands. *Philipp. Agricult.* 29, 1940 (238-252). IV, 3
- 633.18-1.416 : 581.192 Custodia, H. A. Comparative mineral constituents (iron, calcium, and phosphorus) of Elon-clon rice grown in different parts of the Philippines. *Philipp. Agricult.* 30, 1941 (197-214). Biol. Abs. 15 (2254). V, 2
- 633.18-1.416.2 Aoki, M. The behaviour of soil phosphoric acid under paddy field condition. *J. Sci. Soil Japan* 15, 1941 (182-202). C.A. 35 (5233). VI, 3



## BIBLIOGRAPHY OF SOIL SCIENCE

- V, 3    **633.18-1.43** Yur'eva, A.; Khatuntsev, I. Dynamics of soil processes during rice growing. *Pedology* No. 6, 1941 (30-37). [R.]
- VI, 3    **633.18-1.432.21** Shioiri, M.; Aomine, S. The effect of drying of fallow paddy-field soil. *Japan Imp. Agric. Expt. Sta. Spec. Rept.* Feb. 1940, pp. 30. C.A. 35 (5617).
- 633.18-1.433.1** Raalte, M. H. van. On the oxygen supply of rice roots. *Ann. Jard. Bot. Buitenzorg* 51, 1941 (43-57). Biol. Abs. 16 (1245).
- IV, 2    **633.18-1.436** Ridiger, V. Thermal conditions of the soil and the introduction of rice further north. *Dokl. Akad. S.-Kh. Nauk* No. 17, 1940 (12-16).
- IV, 1    **633.18-1.453 : 546.19** Epps, E. A.; Sturgis, M. B. Arsenic compounds toxic to rice. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (215-218).
- VI, 3    **633.18-1.46** Sorokina, A. V. Aerobic microbiological processes in the soil under rice crops. *Mikrobiologiya* 9, 1940 (645-653). C.A. 35 (7089). [R.]
- IV, 3    **633.18-1.5** Sampietro, G. Some causes of poor stands of rice. *G. Ristretto* 29, 1939 (309-318, 338-345). Biol. Abs. 15 (111). [I.]
- 633.18-1.5** Kao, L.-M. Experimental studies on rice culture. *Nanking J. CII*, No. 3, 1941 (43-50). [Ch.]
- 633.18-1.5** Rhind, D.; Thein, U Ba; Tin, U. Growth and yield studies on irrigated paddy in Upper Burma. *Indian J. Agric. Sci.* 13, 1943 (335-348).
- 633.18-1.5** East African Agricultural Journal. Rice cultivation in hanging swamps. *E. Afric. Agric. J.* 9, 1944 (166).
- V, 5    **633.18-1.5 : 535.21** [Bally], W. Why are rice yields in tropical regions lower than those obtained in temperate areas? *Mo. Bull. Agric. Sci. Pract.* 33, 1942 (214T-218T).
- V, 1    **633.18-1.51** Wickramasekera, G. V. Some results of harrowing a growing rice crop. *Trop. Agricult.* 97, 1941 (14-17).
- VI, 4    **633.18-1.51** Tropical Agriculturist. Increased yields following harrowing of the growing rice crop. *Trop. Agricult.* 98, No. 2, 1942 (40-41).
- V, 3    **633.18-1.531** Adair, C. R.; Beachell, H. M.; Jodon, N. E., et al. Comparative yields of transplanted and direct sown rice. *J. Amer. Soc. Agron.* 34, 1942 (129-137).
- 633.18-1.581** Mitra, A. K.; Gupta, P. S. Paddy fallows in the United Provinces. *Indian Farm* 3, 1942 (133-134).
- IV, 3    **633.18-1.582 : 633.32** Natal'in, N. B. Clover in a rice rotation. *Soviet Agron.* No. 8-9, 1940 (30-35). [R.]
- VII, 2    **633.18-1.616** MacLuskie, H. Rice growing by empoldering. Developments in Sierra Leone. *Farm and Forest* 4, 1943 (155-160).
- 633.18-1.67** Lane, E. W.; Cheng, T. T.; Pien, C. L. The water requirements of rice irrigation. *J. Assoc. Chin. Amer. Engrs.* 20, 1399 (233-252).
- VI, 4    **633.18-1.67** Cralley, E. M.; Adair, C. R. Effect of irrigation treatments on stem rot severity, plant development, yield, and quality of rice. *J. Amer. Soc. Agron.* 35, 1943 (499-507).
- VII, 1    **633.18-1.67 : 616.936** Hill, R. B.; Cambournac, F. J. C. Intermittent irrigation in rice cultivation, and its effect on yield, water consumption and anopheles production. *Amer. J. Trop. Med.* 21, 1941 (123-144). *ForschDienst.* 15 (14).

# FERTILIZERS AND GENERAL AGRONOMY

- 633.18-1.81**—**Sethi, R. L.** Manuring of paddy. *Imp. Council Agric. Res. Misc. Bull.* 38, 1940, pp. 46.
- 633.18-1.81**—**Cabotage, T. G.** Addition of potassium sulfate and superphosphate with ammonium sulfate to Lipa clay loam for upland rice. *Philipp. Agrist.* 30, 1941 (136-144).
- 633.18-1.81**—**Songcuya, C. C.** The effects of fertilizing both the seed bed and the field upon the yield of Elon-clon rice. *Philipp. Agrist.* 30, 1941 (107-118). V, 3
- 633.18-1.81**—**Tin, U.** Eleven years' results of continuous manuring of paddy at Mandalay. *Indian J. Agric. Sci.* 11, 1941 (21-30). IV, 4
- 633.18-1.81**—**Nelson, M.** Rice fertilization. *Ark. Agric. Expt. Sta. Bull.* 430, 1943, pp. 23. E.S.R. 89 (441).
- 633.18-1.81**—**Richardson, H. L.; Hwang, S. T.; Feng, C. L., et al.** The use of organic and inorganic manures with rice: a continuous factorial experiment. *Emp. J. Expt. Agric.* 12, 1944 (33-50). VII, 4
- 633.18-1.81:581.192**—**Pain, A. K.** Chemical examination of rice from paddy grown on individual and mixed manured plots. *Trans. Bot. Inst.* 13, 1937-38 (133-137). C.A. 35 (560).
- 633.18-1.811**—**Yuan, H. F.** Some aspects of the salt requirements of rice plants during vegetative stage. *Philipp. Agrist.* 30, 1941 (251-299). V, 5
- 633.18-1.811.2**—**Sircar, S. M.; Sen, N. K.** Studies in the physiology of rice. I. Effect of phosphorus deficiency on growth and nitrogen metabolism in rice leaves. *Indian J. Agric. Sci.* 11, 1941 (193-204). V, 1
- 633.18-1.811.3**—**Galvez, N. L.; Subido, P. S.** Absorption of soil potassium by rice. *Philipp. Agrist.* 30, 1941 (392-400). Biol. Abs. 16 (469).
- 633.18-1.811.9**—**Castillo, E. Y.** Effects of certain cryptotrophic elements upon the growth and yield of upland rice. *Philipp. Agrist.* 29, 1941 (833-850). Biol. Abs. 15 (1780).
- 633.18-1.811.91**—**Szelényi, P.** Researches on the determination of the optimal water demand of the rice plant and on the rational water husbandry of rice growing. *Pub. Bot. Inst. Roy. Hung. Univ. Szeged* 1941, pp. 32. *ForschDienst.* 13 (89).
- 633.18-1.811.91**—**Tang, S.; Chao, P.** The response of upland and lowland rice to varying amounts of soil moisture. *Nanking J. Ch.* No. 3, 1941 (33-36). [E.] VII, 2
- 633.18-1.84**—**Dastur, R. H.** The effect of ammoniacal and nitrate nitrogen on the yields of the rice plant. *Indian J. Agric. Sci.* 10, 1940 (761-767). C.A. 35 (1921). IV, 4
- 633.18-1.841.1**—**Lusanandana, B.** Effects of varying amounts of ammonium sulfate upon yield, rate of maturity and size of grain of rice grown on Lipa clay loam. *Philipp. Agrist.* 30, 1941 (17-30). Biol. Abs. 15 (1785).
- 633.18-1.841.1:581.192**—**Espino, R. B.; Crocker, W.** Effects upon the carbon-nitrogen ratio in leaves of rice grown in Lipa clay loam supplied with varying amounts of ammonium sulfate. *Philipp. Agrist.* 29, 1940 (34-47).

## BIBLIOGRAPHY OF SOIL SCIENCE

- 633.18-1.841.1 : 581.192** Juliano, J. B. ; Ramos, G. M. A study of the growth habit of rice plants: V. Fertilization and grain size. *Philipp. Agricult.* 29, 1940 (431-451).
- IV, 2 **633.18-1.841.7** Tokuoka, M. ; Dyo, S. ; Gyo, S. The fertilizer effect of urea nitrogen. V. Field experiments with rice and sugar cane. *J. Sci. Soil Japan* 14, 1940 (403-410). C.A. 34 (7513).
- V, 2 **633.18-1.874** Goor, G. A. W. van de. Green manuring of lowland rice. *Mohel. Ag. Proctsta. VanBouwe* 50, 1941, pp. 28. [Duc.]
- IV, 6 **633.18-1.876.9 : 664.15** Mitra, A. K. Manurial value of molasses. *Proc. North Ind. Conf. Sug. Tech. Assoc. India* Pt. 1, 1940 (279-292). *Int. Sug. J.* 43 (249).
- 633.18-2** Cralley, E. M. Varied rice diseases. *Rice J.* 43, 1940 (11-12). *A.S.R.* 83 (641).
- 633.18-2** Tullis, E. C. Diseases of rice. *U.S.D.A. Farm. Bull.* 1854, 1940, pp. 17.
- VI, 2 **633.18-2.4** Ryker, T. C. ; Douglas, W. A. Rice disease investigations: root rot studies. *Rice J.* 44, No. 12, 1941 (9-11). *R.A.M.* 22 (77).

## 633.2.3 GRASSES. LEGUMES

- 633.2.3-1.445.5** Volkov, D. A. Ecological study of forage grasses to increase the yields of meadows and pastures on the solonchaks and solonchak soils of the Trans Ural. *Sloan. Rab. Chelch. Enck. S.-Kh. Opit. Sta.* 1, 1939 (223-236). [R.]
- 633.2.3-1.81 : 581.192** Brown, B. A. ; Hollowell, E. A. The chemical composition of some pasture and hay plants as affected by soils and fertilizers. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (131-139).
- 633.2.3-1.81 : 581.192** Vandecaveye, S. C. Effects of soil type and fertilizer treatments on the chemical composition of certain forage and small grain crops. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (107-119).
- 633.2.3-1.81 : 581.192** Nowosad, F. S. ; Woodward, J. C. ; Wright, L. E. The effect of fertilizer treatments on the yield and chemical composition of pasture species. *Sci. Agric.* 22, 1942 (733-745).
- 633.2.3-1.81 : 581.192** Vandecaveye, S. C. ; Baker, G. O. Chemical composition of certain forage crops as affected by fertilizers and soil types. *J. Agric. Res.* 68, 1944 (191-220).
- IV, 1 **633.2.3-1.811.91** Aronovitch, I. Irrigation of forage crops. *Mo. Agric. Bull. Palestine*, July, 1940 (124-127).
- VII, 2 **633.2.3-2.19 : 546.56** Riceman, D. S. ; Anderson, A. J. Copper and zinc deficiency in pasture and crops in South Australia. *J. Dept. Agric. S. Aust.* 47, 1943 (16-29).
- IV, 3 **633.2-1.434** Mikhailov, D. Ya. Role of grasses and fertilizers for structure regeneration on the light loam chernozems of Western Siberia. *Sovet. Agron.* No. 8-9, 1940 (104-107). [R.]
- V, 1 **633.2-1.434 : 581.144.2** Stevenson, T. M. ; White, W. J. Root fibre production of some perennial grasses. *Sci. Agric.* 22, 1941 (108-118).

# FERTILIZERS AND GENERAL AGRONOMY

- 633.2-1.445.7 : 581.192 Cartmill, W. J.** The effects of season, stage of growth, and soil type on the chemical composition of grasses in the Queensland "wet belt." *Queensland J. Agric. Sci.* 1, No. 2, 1944 (1-31).
- 633.2.03 : 546.56 Underwood, E. J. ; Robinson, T. J. ; Curnow, D. H.** The influence of topdressing with copper sulphate on the copper content and the yield of mixed pasture at Gingin. *J. Dept. Agric. W. Aust.* 20, 1943 (80-87). VI, 4
- 633.2.03 : 546.56 : 546.73 Philp, R. C. T. ; Dumaresq, J. A. ; Wilson, R. J.** "Coasty disease" trials, King Island, 1939-40. *Tasman J. Agric.* 11, 1940 (187-192). IV, 3
- 633.2.03 : 546.77 Anderson, A. J.** Molybdenum deficiency on a South Australian ironstone soil. *J. Aust. Inst. Agric. Sci.* 8, 1942 (73-75). VI, 1
- 633.2.03 : 581.144.2 Klapp, E.** The distribution of grassland roots under different forms of use and plant associations. *Pflanzenbau* 19, 1943 (221-236). *Herb. Abs.* 13 (291). VII, 2
- 633.2.03 : 599.32 Ives, R. L.** The heaver-meadow complex. *J. Geomorph.* 5, 1942 (191-203). *Biol. Abs.* 17 (359). VI, 2
- 633.2.03 : 634.9 Smith, R. M.** Some effects of black locusts and black walnuts on southeastern Ohio pastures. *Soil Sci.* 53, 1942 (385-398). V, 5
- 633.2.03-1.411.4-1.81 Nehring, K.** The manuring of moor meadows. *Wbl. Landeslauenisch. Mecklenburg* 24, No. 8, 1940 (93-94). *Finland Pfl.* 37 (69). [G.]
- 633.2.03-1.411.4-1.81 Rinne, L.** The use of nitrogenous and organic manures on low moors for grasses. *Agronomia Tartu* 20, 1940 (771-778). [E.S.C.G.] IV, 2
- 633.2.03-1.411.4-1.81 Wegner, J.** Higher yields of more nutritious hay through use of artificials. *Deut. Landw. Pr.* 67, 1940 (471). *Finland Pfl.* 37, 1941 (60). [G.]
- 633.2.03-1.411.4-1.81 Ahlström, B.** Manurial experiments on peat soils at Sorbyn, 1935-1939. *Scenska Vall-o. MosskFören. Kvartalsskr.* 3, 1941 (129-135). [Sw.] IV, 5
- 633.2.03-1.411.4-1.81 Djurle, O.** Some hay experiments in Central Sweden. *Scenska Vall-o. MosskFören. Kvartalsskr.* 3, 1941 (211-216). *Biol. Abs.* 16 (2077). VI, 2
- 633.2.03-1.411.4-1.81 Lundblad, K.** Manuring and the ley stand. *Scenska Vall-o. MosskFören. Kvartalsskr.* 5, 1943 (101-105). [Sw.] VI, 3
- 633.2.03-1.416 Price, N. O. ; Ellett, W. B. ; Hill, H. H.** Pasture production as affected by type and chemical composition of the soil. *La. Agric. Expt. Sta. Tech. Bull.* 78, 1941, pp. 14. *Biol. Abs.* 16 (1228).
- 633.2.03-1.416 : 581.192 Fraps, G. S. ; Fudge, J. F.** The chemical composition of forage grasses of the east Texas timber country. *Tex. Agric. Expt. Sta. Bull.* 582, 1940, pp. 35. E.S.R. 83 (232). IV, 1
- 633.2.03-1.416 : 581.192 Spangenberg, G. E. ; Nores, J. G. ; Montedonico, L. A., et al.** Production and quality of natural pastures as related to soils and climate. *Rev. Fac. Agron. Univ. Montevideo* No. 25, 1941 (9-77). C.A. 37 (1552). VII, 3

# BIBLIOGRAPHY OF SOIL SCIENCE

- IV, 4      **633.2.03-1.416.1 Thompson, F. B. ; Coup, M. R.** Studies on nitrate and ammonia in soils under permanent pasture. II. The variability of distribution of nitrate. *N.Z. J. Sci. Tech.* 22, 1940 (72A-78A).
- 633.2.03-1.416.1 Thompson, F. B. ; Coup, M. R.** Studies on nitrate and ammonia in soils under permanent pasture. III. The effect of stock urine on soil nitrate. *N.Z. J. Sci. Tech.* 22, 1940 (175A-180A).
- III, 3      **633.2.03-1.416.1 Koperzhinsky, V. V.** Methods of studying the influence of herbage on the fertility of soil. *Vest. S.-Kh. Nauk. Kormodoh.* No. 1, 1941 (38-47). Herb. Abs. 14 (27).
- III, 3      **633.2.03-1.416.1 Thompson, F. B. ; Coup, M. R.** Studies of nitrate and ammonia in soils under permanent pasture. IV. The effect of urine and urea on soil nitrate and ammonia. *N.Z. J. Sci. Tech.* 25A, 1943 (118-124).
- IV, 3      **633.2.03-1.416.1 ; 581.144.2 Nadiarny, F. M.** Role of perennial grasses in the accumulation of roots and nitrogen under steppe conditions. *Soil. Agron.* No. 8-9, 1940 (22-29). [R.]
- III, 4      **633.2.03-1.416.2 Valkanov, V.** Researches on the presence of assimilable phosphoric acid determined in different layers of meadow soil by field, pot and Neubauer experiments. *Bodenk. Pflanznhr.* 31, 1943 (11-55). [G.]
- V, 1      **633.2.03-1.434-1.531 Lopato, Yu. G. ; Sidorov, I. S.** Effect of methods of sowing perennial grasses on soil fertility. *Soil. Zern. Khoz.* No. 1, 1941 (133-141). [R.]
- V, 6      **633.2.03-1.434-1.81 Colby, W. G.** Maintaining fertility levels in Massachusetts pastures. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (281-284).
- V, 5      **633.2.03-1.452-1.547.1 McIlvanie, S. K.** Grass seedling establishment, and productivity-overgrazed vs. protected range soils. *Ecology* 23, 1942 (228-231).
- V, 2      **633.2.03-1.461.1 3 Böhler, H.** The decomposition of ploughed-up meadow sod and its effect on the yield of a succeeding arable crop. *Landw. Jahrb.* 90, 1940 (535-570). *ForschDienst.* 12 (9). [G.]
- III, 4      **633.2.03-1.514 ; 581.144.2 Jacques, W. A.** Root-development in some common New Zealand pasture plants. III. Ryegrass, cocksfoot, and white clover. The regenerative power of roots and its relationship to grassland harrowing. *N.Z. J. Sci. Tech.* 26A, 1944 (32-41).
- 633.2.03-1.58 Bledsoe, R. P. ; Sell, O. E.** Permanent pastures. *Ga. Expt. Sta. Bull.* 207, 1940, pp. 51.
- 633.2.03-1.58 Levy, E. B.** Pasture management in relation to increased carrying capacity. *Massey Agric. Coll. Proc. Ninth Ann. Meetg. Sheep Farm.* 1940 (57-61).
- 633.2.03-1.58 Agababjan, S. M.** An experiment for obtaining consistently high yields of hay on mountain meadows of Armenia. *Vest. S.-Kh. Nauk. Kormodoh.* No. 2, 1941 (18-21). Herb. Abs. 14 (13).
- 633.2.03-1.58 Carr, W. A. C.** Short-term leys and soil fertility. *J. Min. Agric.* 48, 1941 (134-137).

# FERTILIZERS AND GENERAL AGRONOMY

- 633.2.03-1.58 Gelth, R. ; Zürn, F. Production from German pastures and maintaining improvements in their yields. *Ber. d. Landw. Sonderh.* 152, 1941, pp. 120. Ernähr. Pfl. 38 (58). VI, 1
- 633.2.03-1.58 Hutcheson, T. B. Experiments and observation on pasture management in Appomattox County. *Va. Agric. Expt. Sta. Bull.* 333, 1941, pp. 32. E.S.R. 85 (611). V, 2
- 633.2.03-1.58 Moore, H. I. War-time grassland management. *Fert. Feed. J.* 26, 1941 (31-32, 39)
- 633.2.03-1.58 Pohjakallio, O. The effect of mode of establishing hay fields and the drought resistance of the plants on closeness of stand and yield in the meadows. *Falt. Maatalousk. Julk. No.* 114, 1941, pp. 33. Herb. Abs. 13 (100). [Fig.]
- 633.2.03-1.58 Stapledon, R. G. Ley-farming. *War Food Prod. Adv. Bull. Aberystwyth* 2, 1941, pp. 22.
- 633.2.03-1.58 Jones, M. Reseeding. *Soil. J. Agric.* 24, 1942 (47-52).
- 633.2.03-1.58 Meulen, E. V. ; McIntyre, G. ; Harrison, C. M. Management practices and returns on white clover pastures. *Mich. Agric. Expt. Sta. Quant. Bull.* 24, 1942 (233-238).
- 633.2.03-1.58 Culpin, C. Starting ley farming. *Woods, Agric. Chron.* 11, 1943 (75, 77, 79, 81, 83, 85, 87).
- 633.2.03-1.58 Fisher, J. Pastures for soil fertility. *Farm. S. Africa* 18, 1943 (641-644).
- 633.2.03-1.58 Ahlgren, H. L. ; Rupel, I. W. ; Bohstedt, G., et al. Eight years' results on the effectiveness of fertilization and management in increasing the production of permanent pastures. *J. Amer. Soc. Agron.* 36, 1944 (301-315). VII, 3
- 633.2.03-1.58 Imperial Agricultural Bureaux. Alternate husbandry. *Imp. Agric. Bur. Joint Pub.* 6, 1944, pp. 157.
- 633.2.03-1.58 551.48 Gard, L. E. ; Fuelleman, R. F. ; Van Doren, C. A., et al. Runoff from pasture land as affected by soil treatment and grazing management and its relationship to botanical and chemical composition and sheep production. *J. Amer. Soc. Agron.* 35, 1943 (332-347). VI, 3
- 633.2.03-1.58 581.144.2 Haynes, J. L. Effects of pasture practices on root distribution. *J. Amer. Soc. Agron.* 35, 1943 (10-18). VI, 2
- 633.2.03-1.58 581.192 McIlroy, R. J. ; Bartrum, M. P. The influence of winter management on chemical composition of herbage from dairy pastures. Part I. *N.Z. J. Sci. Tech.* 22, 1940 (166A-175A).
- 633.2.03-1.58 581.192 Wilsdorf, J. Yield results from alpine clover meadows in 1938 and 1939. *Landw. Jahrb.* 91, 1942 (983-1003). [G.] VI, 1
- 633.2.03-1.58 581.192 Weinmann, H. Effects of defoliation density and fertilizer treatment on Transvaal highveld. *Emp. J. Expt. Agric.* 11, 1943 (113-124). VI, 3
- 633.2.03-1.58 581.5 Klapp, E. Some aspects of grassland biology. *ForschDienst.* 13, 1942 (1-10). [G.]
- 633.2.03-1.58 677.31—Dumaresq, J. A. Effects of improved pasture on superfine merino wool. III. Summary of Valleyfield trials. *Tasm. J. Agric.* 13, 1942 (53-58). VI, 1

## BIBLIOGRAPHY OF SOIL SCIENCE

- IV, 2    **633.2.03-1.58-1.459—Nielson, A. B.** Management—a cure for overgrazed range. *J. Amer. Soc. Agron.* 32, 1940 (602-606). Biol. Abs. 14 (1467).
- VII, 3    **633.2.03-1.58-1.459 Zakharov, P. G.** Ley farming—the basis of erosion control. *Storn. Pam. W. R. Williams*, 1942 (317-324). [R.]
- VI, 2    **633.2.03-1.581 Kerr, A. J.** A new system of grass-fallow strip-cropping for the maintenance of soil fertility. *Emp. J. Expt. Agric.* 10, 1942 (125-132). Biol. Abs. 17 (231).
- V, 2    **633.2.03-1.582 Malandin, G. A.** Significance of perennial grasses in raising soil fertility and the principles of correct rotations in the Chelabinsk region. *Storn. Rab. Chelabinsk. S.-Kh. Opvt. Sta.* 1, 1939 48-129. [R.]
- 633.2.03-1.587—Monson, O. W.; Quesenberry, J. R.** Range improvement through conservation of flood waters. A report of progress. *Mont. Agric. Expt. Sta. Bul.* 380, 1940, pp. 20. E.S.R. 84 (254).
- VI, 3    **633.2.03-1.587 Bomford, J. F.** Pit silage making and meadow irrigation. *Woods Agric. Chron.* 11, 1943 (138-139, 141, 143, 145, 147, 149, 151).
- 633.2.03-1.587 Heasman, W. S.** Water meadows and their management. *J. Min. Agric.* 50, 1943 (321-324).
- 633.2.03-1.587 Heasman, W. S.** Water meadows for hay and pasture. *J. Min. Agric.* 50, 1943 (362-365).
- 633.2.03-1.587 Salzmann, R.** Studies of the plant stand and of the productivity of water meadows on the River Langeten in the Upper Aargau. *Ber. Schweiz. Bot. Ges.* 53A, 1943 (418-437). Herb. Abs. 14 (11).
- 633.2.03-1.587 Warren, T. W.** Water meadows. *J. Min. Agric.* 50, 1943 (58-59).
- VII, 3    **633.2.03-1.587 Hubbell, D. S.; Gardner, J. L.** Some edaphic and ecological effects of water spreading on range lands. *Ecology* 25, 1944 (27-44).
- IV, 1    **633.2.03-1.589 Cook, L.** Grass burning. *S. Afric. J. Sci.* 36, 1939 (270-282). B.C.A. 59 (755).
- 633.2.03-1.61 Semple, A. T.; Hein, M. A.** Pastures to hold and enrich the soil. *U.S.D.A. Farm Bull.* 1900, 1942, pp. 29.
- IV, 1    **633.2.03-1.613 Benford, H. R.; Sturkie, D. G.** Effect of level terraces on yield and quality of pasturage and water conservation. *J. Amer. Soc. Agron.* 32, 1940 (761-767).
- 633.2.03-1.613 : 581.5—Smith, R. M.** The vegetation pattern of several well-established contour furrow systems in West Virginia. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (488-491).
- 633.2.03-1.67 Calder, G. G.** Establishing a pasture under irrigation. *N.Z. J. Agric.* 61, 1940 (109-111, 113).
- V, 2    **633.2.03-1.67 Hall, F. A.** Irrigated pastures for broad acres. *Agric. Gaz. N.S.W.* 52, 1941 (517-522).
- 633.2.03-1.67—Elliott, H. G.; Lightfoot, L. C.; Ryan, F. E.** Irrigation interval trial. *J. Dept. Agric. W. Aust.* 19, 1942 (164-170).
- VI, 2    **633.2.03-1.67—Elliott, H. G.; Ryan, F. E.** Pasture development. Part III. Rotational grazing demonstration under irrigated conditions. *J. Dept. Agric. W. Aust.* 19, 1942 (145-163).

# FERTILIZERS AND GENERAL AGRONOMY

**633.2.03-1.67 Rayner, G. B.** Irrigated pastures: trials in the Goulburn Valley and northern irrigation areas. *J. Dept. Agric. Victoria* 40, 1942 (151-153).

**633.2.03-1.81 Rabotnov, T. A.** Manuring of mountain meadows. *Vest. S.-Kh. Nauk. Kormodob.* No. 3, 1940 (24-41). *Herb. Abs.* 12 (124).

**633.2.03-1.81 Wallin, B.** Control results and other experiences from pastures on sandy soil. *Svenska Vall- o. Mosshörs. Kvartalskr.* 2, 1940 (391-399). [Sw.]

**633.2.03-1.81 Bogdanovich, I. A.** Result of the effect of mineral fertilizers on the production of meadows. *Sotsial. Zern. Khim.* No. 2, 1941 (109-111). [R.] V, 2

**633.2.03-1.81 Charpentier, C. A. G.; Lehtisalo, P.** Investigations on the fertilization of treated pastures with calcium nitrate in the years 1932-1936. *Acta Agraria Fenn.* 47, No. 2, 1941 (1-52). C.A. 37 (2869). VII, 2

**633.2.03-1.81 Larsson.** Manuring of hay leys. *Svensk Förtidn.* 10, 1941 (47-50). *Herb. Abs.* 12 (125).

**633.2.03-1.81 McConkey, O.** Experiments on old bluegrass pasture. *Sci. Agric.* 21, 1941 (237-241). C.A. 35 (2658).

**633.2.03-1.81 Nelson, M.** Permanent pasture studies. *Ark. Agric. Expt. Sta. Bull.* 407, 1941, pp. 58. *Biol. Abs.* 15 (1404). IV, 6

**633.2.03-1.81 Perkins, W. R.; Grizzard, A. L.; Hutcheson, T. B.** Lime and fertilizers improve pastures. *Pa. Agric. Expt. Sta. Bull.* 330, 1941, pp. 32. E.S.R. 85 (611).

**633.2.03-1.81 Schoiz, W.** Report on a five-year pasture manure experiment on hill land in Glatz, Silesia. *Ernähr. Pfl.* 37, 1941 (78-82). [G.]

**633.2.03-1.81 Dunklee, D. E.; Midgley, A. R.** Grassland maintenance in Vermont. I. A preliminary study. *Vt. Agric. Expt. Sta. Bull.* 484, 1942, pp. 14. E.S.R. 87 (660).

**633.2.03-1.81 Uverud, H.** Experiments with incremental amounts of artificial manure on pastures. *Ark. Bull.* Nong. (1940-41) 15, 1942 (154-204). *Herb. Abs.* 13 (8).

**633.2.03-1.81 Brown, B. A.; Munsell, R. I.** Pasture investigations. X. The effects of fertilizers on grazed, permanent pastures. *Storrs Agric. Expt. Sta. Bull.* 245, 1943, pp. 54. E.S.R. 90 (328). VII, 3

**633.2.03-1.81 Carr, R. B.; Rhoad, A. O.** Influence of lime and fertilizers on pasture establishment and production at Jeanerette, La., 1932 to 1938. *U.S.D.A. Circ.* 666, 1943, pp. 20. VI, 4

**633.2.03-1.81 Flink, D. S.** Grassland experiments. *Mo. Agric. Expt. Sta. Bull.* 415, 1943 (191-227). C.A. 37 (4845). VII, 2

**633.2.03-1.81 Hall, T. D.; Meredith, D.; Murray, S. M.** A comparison of compost and inorganic fertilizers as top dressing for established pasture. *S. Agric. J. Sci.* 39, 1943 (116-125). C.A. 37 (5182). *Herb. Abs.* 13 (294). VII, 2

**633.2.03-1.81 Pohlman, G. G.; Cornell, F. D., Jr.** Pasture and improvement in Upshur County. W. Va. *Agric. Expt. Sta. Bull.* 308, 1943, pp. 20. E.S.R. 90 (329).

**633.2.03-1.81 Noll, C. F.; Bechdel, S. I.; Williams, P. S., et al.** Pasture fertilization. *Pa. Agric. Expt. Sta. Bull.* 460, 1944, pp. 27.



# BIBLIOGRAPHY OF SOIL SCIENCE

- 633.2.03-1.81 : 577.16--Smith, A. M.; Wang, T. The carotene content of certain species of grassland herbage. *J. Agric. Sci.* 31, 1941 (370-378). R.C.A.B. 111, 1941 (252).
- VII, 2 633.2.03-1.81 : 581.144.2--Bronzova, G. Ya. The effect of fertilizers on the development of root systems of meadow plants and storage in them of carbohydrates. *Vest. S.-Kh. Nauk. Kormodob.* No. 4, 1940 (29-38). Herb. Abs. 13 (245).
- VII, 4 633.2.03-1.81 : 581.144.2 Weinmann, H. Root reserves of South African highyield grasses in relation to fertilizing and frequency of clipping. *J. S. Afric. Bot.* April 1944 (37-54).
- VII, 2 633.2.03-1.81 : 581.192 Gericke, S. Changes produced in the nutrient content of meadow hay through manuring. *Phosphorsäure* 10, 1940 (339-366). Herb. Abs. 13 (292).
- 633.2.03-1.81 : 581.192 Davies, R. O. The effect of manuring, grazing and cutting on the yield, botanical and chemical composition of natural hill pastures. II. Chemical section. *J. Ecol.* 29, 1941 (49-61). Herb. Abs. 11 (65).
- V, 2 633.2.03-1.81 : 581.192 Drillkens, H. The importance of manuring, regulation of the time of cutting, sowing and ploughing for productivity of Lahn valley meadows. *Pflanzenbau* 17, 1941 (327-352). Herb. Abs. 11 (287). [G.]
- V, 2 633.2.03-1.81 : 581.192 Gericke, S. Possibilities for improving the quality of meadow hay by manuring. *Bodenk. PflErnähr.* 25, 1941 (313-323). [G.]
- 633.2.03-1.81 : 581.192--Hall, T.; Meredith, D.; Murray, S. M. Fertilising natural veld and its effect on sward, chemical composition, carrying capacity and beef production. *S. Afric. J. Sci.* 37, 1941 (111-129).
- VI, 4 633.2.03-1.81 : 581.192 Weigert, J. Effect of different manurial treatments on the hay and protein yield of meadows. *Phosphorsäure* 10, 1941 (318-323). Herb. Abs. 13 (98).
- 633.2.03-1.81 : 581.192 Woodhouse, W. W., Jr. Some effects of fertilization on the botanical and chemical composition of pastures. *Proc. Assoc. S. Agric. Workers* 42, 1941 (41-42). C.A. 35 (7623).
- V, 6 633.2.03-1.81 : 581.192 McClendon, J. W.; Mayton, E. L. The effect of lime and fertilizer on the composition and yield of pasture herbage in Alabama. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (285-287).
- VII, 2 633.2.03-1.81 : 581.192 McClendon, J. W.; Mayton, E. L. The effect of lime and fertilizer on the composition and yield of pasture herbage from different soil types. *Proc. Assoc. S. Agric. Workers* 43, 1942 (88-89). C.A. 37 (1822).
- VII, 4 633.2.03-1.81 : 581.192 Weinmann, H. Yields and chemical composition of pasture herbage as influenced by fertilising and frequent clipping. *S. Afric. J. Sci.* 40, 1943 (127-134). C.A. 38 (2780).
- 633.2.03-1.81 : 619--Russell, F. C. Minerals in pasture: deficiencies and excesses in relation to animal health. *Imp. Bur. Anim. Nutr. Tech. Commun.* 15, 1944, pp. 91.

# FERTILIZERS AND GENERAL AGRONOMY

- 633.2.03-1.811.9**—Killinger, G. B.; Blaser, R. E.; Hodges, E. M., et al. Minor elements stimulate pasture plants. A preliminary report. *Fla. Agric. Expt. Sta. Bull.* 384, 1943, pp. 12. E.S.R. 89 (437). Biol. Abs. 17 (2405). VII, 2
- 633.2.03-1.816.23**—Berezansky, M. Ya. A method of applying fertilizers to perennial grasses in sugar-beet regions. *Khim. Sotsial. Zemled.* No. 2, 1940 (66-69). Pedology No. 10, 1940 (120). IV, 4
- 633.2.03-1.816.23**—Brown, W. T. Economic topdressing of steep hill country. *N.Z. J. Agric.* 62, 1941 (81-83).
- 633.2.03-1.816.23**—Syme, P. S. War-time topdressing. Making the most of the fertiliser ration. *N.Z. J. Agric.* 65, 1942 (65-68). VI, 1
- 633.2.03-1.816.23-1.878**—Lebedev, I. I. Top-dressing grassland with peat. *Trudy Leningr. Tot.* No. 1, 1939 (56-67). Pedology No. 1, 1940 (123). IV, 3
- 633.2.03-1.816.3**—Klapp, E. Fertilizer placement for permanent grassland. *Bodenk. PflErnahr.* 33, 1944 (285-325). [G.] VII, 4
- 633.2.03-1.816.3 : 581.144.2**—Jacques, W. A. Root-development in some common New Zealand pasture plants. II. Perennial rye-grass (*Lolium perenne*), cocksfoot (*Dactylis glomerata*), and white clover (*Trifolium repens*). Effect of fertilizer placement on the yield of roots and herbage. *N.Z. J. Sci. Tech.* 25A, 1943 (91-117). VII, 3
- 633.2.03-1.821.1**—Koperzhinsky, V. V. The liming of meadows. *Vest. S.-Kh. Nauk. Komodob.* No. 3, 1940 (42-55). Herb. Abs. 12 (124). VI, 1
- 633.2.03-1.821.1**—Elliott, A. G.; Lynch, P. B. Lime responses on grassland. *N.Z. J. Agric.* 64, 1942 (231-239).
- 633.2.03-1.821.1**—Hanley, J. A.; Bond, J. R.; Ling, A. W. Liming old grassland. *J. Min. Agric.* 49, 1942 (29-35).
- 633.2.03-1.821.1 : 581.192**—Fagan, T. W.; Jones, E.; Williams, E. E., et al. The influence of liming on the herbage of acidic soils in Merionethshire. *Welsh J. Agric.* 16, 1940 (144-153). IV, 2
- 633.2.03-1.821.1 : 581.192**—Elliott, A. G.; Lynch, P. B. An investigation into the effect of heavy infrequent dressings as against lighter but more frequent applications of carbonate of lime as top-dressings on grassland. *N.Z. J. Sci. Tech.* 23, 1941 (57A-79A). V, 5
- 633.2.03-1.83**—Schmitt, L. The action of various potash salts on meadows. *Ernahr. Pfl* 36, No. 7, 1940. Better Crops with Plant Food 25, 1 (36). IV, 4
- 633.2.03-1.83**—Asdonk, T.; Jacob, A. Summary of results of trials with potash manuring made from 1935 to 1938 under the auspices of the Agricultural Technical Potash Bureau and the German Potash Syndicate. VI. Meadows, and VII. General remarks on the whole series. *Bodenk. PflErnahr.* 32, 1943 (16-35). [G.]
- 633.2.03-1.84**—Ringborg, G. Supplementary feeding of grazing cows with special reference to the economics of nitrogenous manuring. *Svenska Vall- o. MossFören. Medd.* 4, 1940 (161-214). [Sw.g.]
- 633.2.03-1.84**—Uverud, H. Experiments in nitrogenous manuring of pastures. *Arb. Reiche. Norge* (1940-41) 15, 1942 (85-153). Herb. Abs. 13 (8).

## BIBLIOGRAPHY OF SOIL SCIENCE

- V, 4     **633.2.03-1.84 : 581.192** Eheart, J. F. ; Ellett, W. B. The effect of certain nitrogenous fertilizers on the chemical and vegetative composition and yield of pasture plants. *Can. Agric. Expt. Sta. Tech. Bull.* 75, 1941, pp. 44. [Biol. Abs. 16 (982).]
- IV, 6     **633.2.03-1.84 : 581.192** Lewis, A. H. Improving the quality of hay. *Imp. J. Expt. Agric.* 9, 1941 (43-49). C.A. 35 (4897).
- V, 2     **633.2.03-1.84 : 581.192** Morgenweck, G. Effects of nitrogen on young permanent grassland. *Pflanzenbau* 17, 1941 (295-312). Herb. Abs. 11 (234). [G.]
- 633.2.03-1.84 : 581.192** Robinson, R. R. ; Pierre, W. H. The effect of nitrogen fertilization of permanent pastures on seasonal distribution of yields and on nitrogen recovery in the herbage. *J. Amer. Soc. Agron.* 34, 1942 (747-764).
- VII, 1     **633.2.03-1.84 : 581.192** Brown, B. A. ; Munsell, R. I. Grasses fertilized with nitrogen compared with legumes for hay and pasture. *J. Amer. Soc. Agron.* 35, 1943 (811-816).
- IV, 5     **633.2.03-1.84 : 581.5** Olofsson, S. Comparative investigations on the amount of roots, loss on ignition, pH value and phosphoric acid status in pastures with and without intensive nitrogenous manuring. *Svenska Fäll- o. Mossböden, Medd.* 5, 1941 (215-286). [Sw.]
- IV, 5     **633.2.03-1.84 : 581.5** Olofsson, S. Root quantity, loss on ignition, reaction and phosphate status in soils under pasture with and without intensive nitrogen manuring. *Svenska Fäll- o. Mossböden, Kärnskr.* 3, 1941 (112-121). [Sw.]
- 633.2.03-1.85** Woodhouse, W. W., Jr. Use of T.V.A. phosphates and limestone on pastures. A progress report. *N.C. Agric. Expt. Sta. Agron. Inf. Cir.* 129, 1941, pp. 6. E.S.R. 85 (184).
- 633.2.03-1.85 : 581.192** Gericke, S. ; Kurth, H. The manuring of meadows with phosphoric acid and its effect on yield and quality. *Phosphorsäure* 8-9, 1940 (318-361). Herb. Abs. 13 (292).
- VI, 3     **633.2.03-1.85 : 581.192** Gericke, S. Possibilities of increased protein production from pastureland. *Chem.-Ztg.* 65, 1941 (145-146). C.A. 36 (606).
- VII, 2     **633.2.03-1.85 : 581.192** O'Brien, R. E. The effect of different phosphatic fertilizers on the chemical composition of pasture herbage. *Proc. Assoc. S. Agric. Workers* 43, 1942 (35-36). C.A. 37 (1821).
- VI, 3     **633.2.03-1.85 : 581.192** O'Brien, R. E. ; Obenshain, S. S. The effect of different phosphatic fertilizers on the yield, plant population and chemical composition of pastures' herbage on Dunmore and Emory soils. *Can. Agric. Expt. Sta. Tech. Bull.* 80, 1942, pp. 37. Biol. Abs. 17 (1281).
- VII, 1     **633.2.03-1.85-1.821.1 : 581.192** Elliott, A. G. ; Lynch, P. B. Top-dressing grassland with phosphates. Part II. The effect of various phosphatic fertilizers with and without lime on pasture production and composition. *N.Z. J. Sci. Tech.* 24, 1942 (78A-90A).
- IV, 5     **633.2.03-1.86-** Bader, B. Manurial questions in German alpine farming. *Phosphorsäure* 2, 1939 (138-146). Forschdienst. 11 (33).
- VI, 1     **633.2.03-1.86** Hellström, P. Farmyard manure for clover leys. *Lantmannen* 25, 1941 (153-154). Herb. Abs. 12 (127).

# FERTILIZERS AND GENERAL AGRONOMY

- 633.2.03-1.86 Sears, P. D. ; Newbold, R. P. The effect of sheep droppings on yield, botanical composition, and chemical composition of pasture. I. Establishment of trial, technique of measurement, and results for the 1940-41 season. *N.Z. J. Sci. Tech.* 24, 1942 (36A-61A). VII, 1
- 633.2.03-1.86 Zuern, F. Increased yield from permanent grassland through use of farmyard manure. *Weiden, u. Futterbau* No. 1, 1942. Herb. Abs. 13 (7).
- 633.2.03-1.862 : 581.192 Nevens, W. B. Cow's urine as a fertilizer for bluegrass pastures. *J. Dairy Sci.* 24, 1941 (761-769). Biol. Abs. 15 (2256).
- 633.2.03-1.862 : 581.192 Hodgson, R. E. ; Knott, J. C. ; Miller, V. L., et al. The value of liquid manure as a fertilizer for pasture. *Wash. Agric. Expt. Sta. Bull.* 412, 1942, pp. 28.
- 633.2.03-1.879.2- Geith, R. ; Sajonz, A. Experiment in the use of sewage water on permanent pastures at Podelwitz, near Leipzig. *ForschDienst.* 10, 1940 (314-329). Herb. Abs. 11 (450). [C.]
- 633.2.03-2.51 Wallin, B. The weed problem. 3. Combating weeds during the summer. b. In pastures. *Skanska Vall- o. Mosskottan, Kentalsskr.* 3, 1941 (224-232). Biol. Abs. 17 (847).
- 633.2.03-2.51 Dore, W. G. ; Raymond, L. C. Pasture studies XXIV. Viable seeds in pasture soil and manure. *Sci. Agric.* 23, 1942 (69-79).
- 633.21-1.4 Watkins, J. M. ; Conrey, G. W. ; Evans, M. W. The distribution of Canada bluegrass and Kentucky bluegrass as related to some ecological factors. *J. Amer. Soc. Agron.* 32, 1940 (726-728). IV, 1
- 633.21-1.4 : 581.144.2 Naylor, A. W. Effects of temperature, calcium, and arsenious acid on seedlings of *Poa pratensis*. *Bot. Gaz.* 101, 1939 (366-379). E.S.R. 83 (488). V, 1
- 633.21-1.416.1 : 581.192 Griffith, R. B. Effect of nitrogen on anther color of Kentucky bluegrass. *J. Amer. Soc. Agron.* 35, 1943 (348-349). VI, 3
- 633.21-1.452 Whitt, D. M. The role of bluegrass in the conservation of the soil and its fertility. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (309-311). V, 5
- 633.23-1.436 Stuckey, I. H. Influence of soil temperature on the development of colonial bent grass. *Plant Physiol.* 17, 1942 (416-422). V, 3
- 633.23-1.81 DeFrance, J. A. ; Odland, T. E. Seed yields of velvet bent, *Agrostis canina* L., as influenced by the kind of fertilizer applied. *J. Amer. Soc. Agron.* 34, 1942 (205-210).
- 633.261-1.5 Kumar, L. S. S. ; Joshi, W. V. A study of the Giant Star grass (*Cynodon* sp.) for HCN content, yield and palatability. *Proc. Indian Acad. Sci.* 16B, 1942 (72-78). VI, 1
- 633.261-1.5 Sen, B. Giant Star grass. *Indian Farm.* 3, 1942 (421-424).
- 633.261-2.954.9 Fromm, F. ; Vidal, I. M. The chemical control of Bermuda grass and of crowfoot grass. *Science* 99, 1944 (478). VII, 4
- 633.262-1.453 Benedict, H. M. The inhibiting effect of dead roots on the growth of bromegrass. *J. Amer. Soc. Agron.* 33, 1941 (1108-1109). V, 2

## BIBLIOGRAPHY OF SOIL SCIENCE

- VI, 1    **633.262-1.453** Myers, H. E.; Anderson, K. L. Bromegrass toxicity vs. nitrogen starvation. *J. Amer. Soc. Agron.* 34, 1942 (770-773).
- 633.262-1.5** Fuelleman, R. F.; Burlison, W. L.; Kamm-lade, W. G. Bromegrass and bromegrass mixtures. Culture and utilization. *Ill. Agric. Expt. Sta. Bull.* 496, 1943 (474-491).
- VII, 1    **633.262-1.58** Etherington, J. Trials with *Bromus marginatus* on the Kinangop, Kenya Colony. *E. Afric. Agric. J.* 9, 1943 (33-34).
- 633.262-1.84** Harrison, C. M.; Crawford, W. N. Seed production of smooth brome grass as influenced by applications of nitrogen. *J. Amer. Soc. Agron.* 33, 1941 (643-651). E.S.R. 86 (319).
- IV, 6    **633.263 : 581.144.2** Jacques, W. A. Root-development in some common New Zealand pasture plants. I. Perennial rye-grass (*Lolium perenne*). A. Effect of time of sowing and taking a hay crop in the first harvest year. *N.Z. J. Sci. Tech.* 22, 1941 (237A-247A).
- 633.263-1.83 : 581.192** Rauterberg, E.; Kabitzsch, A. The effect of potash on the nitrogen economy of rye grass, cocksfoot and meadow fescue. *Bodenk. Pfl. nähr.* 32, 1943 (197-203). [G.]
- VII, 4    **633.266 : 633.283** Lovvorn, R. L. The effects of fertilization, species competition, and cutting treatments on the behavior of Dallis grass, *Paspalum dilatatum* Poir., and carpet grass, *Axonopus affinis* Chase. *J. Amer. Soc. Agron.* 36, 1944 (590-600).
- 633.266-1.5** Burton, G. W. The establishment of Bahia grass, *Paspalum notatum*. *J. Amer. Soc. Agron.* 32, 1940 (545-549). E. S. R. 84 (36). *Biol. Abs.* 15 (275).
- 633.266-1.5** Norval, R. *Paspalum dilatatum* as a fodder crop. *Farm. S. Africa* 17, 1942 (175-178).
- VI, 1    **633.281-1.5** Gregory, G. B. Guatemala grass as a fodder crop in St. Lucia. *Trop. Agric. Trin.* 19, 1942 (192-193).
- VI, 2    **633.282-1.5** Kusnetsova, N. A. After-fallow crop of Sudan grass in Middle Asia. *Dokl. Akad. S.-Kh. Nauk* No. 1, 1941 (3-6). *Biol. Abs.* 17 (571).
- VII, 2    **633.282-1.84 : 581.192** Wynd, F. L. Comparison of the efficiency of single applications with repeated top dressings of nitrogenous fertilizers in increasing the yield of dry matter, nitrogen, and vitamin C (ascorbic acids) of Sudan grass. *Plant Physiol.* 17, 1942 (645-651).
- VI, 3    **633.282-2.19** Wynd, F. L. Chlorosis in Sudan grass. *Plant Physiol.* 18, 1943 (303-305).
- V, 2    **633.283-1.445.7**—Crown Colonist. A beneficent grass. *Crown Colonist* 12, 1942 (64).
- VI, 1    **633.283-1.5** Blaser, R. E.; Stokes, W. E. The chemical composition, growth, and certain deficiency symptoms of carpet grass, *Axonopus affinis*, as affected by lime and fertilizer mixtures. *J. Amer. Soc. Agron.* 34, 1942 (765-768).
- VI, 1    **633.283-1.613** Moerdyk, J. L. Napier grass for soil reclamation. *Farm. Week. S. Africa* 64, 1942 (40).
- VI, 3    **633.283-1.613** Maselleld, G. B. Experience with grass stop-wash lines in Uganda. *E. Afric. Agric. J.* 8, 1943 (219-222).
- V, 4    **633.283-1.81**—Hackenberg, P. N. Fertilizer experiments on Guinea grass. *Landbouw* 16, 1940 (730-749). *Biol. Abs.* 16 (984).

# FERTILIZERS AND GENERAL AGRONOMY

- 633.283-1.81 : 581.192**—Taylor, A. J. The composition of Kikuyu grass under intensive grazing and fertilizing. *S. Africa Dept. Agric. Bull.* 203, 1941, pp. 18.
- 633.283-1.81 : 581.192**—Blaser, R. E.; Kirk, W. G.; Stokes, W. E. Chemical composition and grazing value of Napier grass, *Pennisetum purpureum* Schum., grown under a grazing management practice. *J. Amer. Soc. Agron.* 34, 1942 (167-174). *Biol. Abs.* 16 (1225).
- 633.283-1.81 : 581.192**—Blaser, R. E.; Stokes, W. E. Effect of fertilizer on growth and composition of carpet and other grasses. *Fla. Agric. Expt. Sta. Bull.* 390, 1943, pp. 31. E.S.R. 90 (179).
- 633.283-1.81 : 581.192**—Fraps, G. S.; Fudge, J. F.; Reynolds, E. B. Effect of fertilization of a Crowley clay loam on the chemical composition of forage and carpet grass, *Axonopus affinis*. *J. Amer. Soc. Agron.* 35, 1943 (560-566). *Biol. Abs.* 17 (2172).
- 633.283-1.86 : 581.192**—Georgi, C. D. V.; Lucy, A. B.; Teik, G. L. A manurial experiment with Merker and Napier grasses. *Malay. Agric. J.* 29, 1941 (304-321).
- 633.283-2.19-1.811.3**—Burton, G. W.; Lefebvre, C. L. Potash deficiency symptoms in Napier grass, *Pennisetum purpureum*. *J. Amer. Soc. Agron.* 34, 1942 (372-375).
- 633.285-1.461.52**—Nogtev, V. P. Nodules on the roots of meadow foxtail, *Alopecurus pratensis* L., their origin and physiological function. *Bot. Zh. S.S.S.R.* 23, 1938 (145-150). *Biol. Abs.* 16 (1415).
- 633.285-1.5**—Vicente, A. G. The establishment of esparto grass. *Agricultura Madrid* 12, 1943 (46). *Herb. Abs.* 13 (202).
- 633.287**—Wenger, L. E. Buffalo grass. *Kans. Agric. Expt. Sta. Bull.* 321, 1943, pp. 78.
- 633.287-1.5**—Smit, N. L. Rhodes grass as a pasture crop. *Farm. S. Africa* 18, 1943 (184-186). *Biol. Abs.* 17 (2408).
- 633.287-1.616**—Bryce, J. The economic exploitation of rice grass. *Emp. J. Expt. Agric.* 9, 1941 (167-170).
- 633.288-1.4**—Syme, P. S. Pampas grass is a valuable winter fodder. *N.Z. J. Agric.* 61, 1940 (93-96).
- 633.288-1.5**—Brown, W. T. Pampas grass on high country. *N.Z. J. Agric.* 63, 1941 (113-114, 115, 117).
- 633.288-1.5**—Taylor, C. R. Pampas grass: successful methods used for establishment in the Bay of Plenty. *N.Z. J. Agric.* 63, 1941 (39-43).
- 633.289-1.416**—Lehane, J. J.; Staple, W. J. The effect of crested wheat grass on some physical and chemical characteristics of the soil. *Sci. Agric.* 23, 1943 (509-517).
- 633.289-1.86**—Schneider, F. Manurial treatment of *Nardus* swards. *Wien. Landw. Ztg.* 91, 1941 (41). *Herb. Abs.* 13 (7).
- 633.29-1.5**—Nilsson-Leissner, G. Experiments with fodder mallow. *Svenska Vall- o. MosskFören. Kvarlsskr.* 4, 1942 (362-364). *Herb. Abs.* 13 (207).
- 633.29-1.5 : 581.192**—Muenschner, W. C.; Loosli, J. K. Growth and composition of curled mallow, *Malva crispa*. *J. Amer. Soc. Agron.* 35, 1943 (544-546).
- 633.29-1.811.3**—Jacob, A.; Gottwick, R. Potash requirements of the fodder mallow. *Ernähr. Pfl.* 37, 1941 (1-2). [G.]

V, I

V, 6

VII, 2

VI, 4

VI, 3

VII, 2

# BIBLIOGRAPHY OF SOIL SCIENCE

- 633.292-1.5** -Bosman, F. H. Spineless cactus. *Farm. S. Africa* 17, 1942 (665-667).
- 633.292-1.5** Beau, M. Note on cactus (*Opuntia vulgaris*). *Arch. Inst. Pasteur An. N.* 29, 1940 (132-137). Biol. Abs. 16 (998).
- 633.3 : 546.27** Pillard, J. R. ; Ireland, C. F. ; Reisenauer, H. M. The importance of borax in legume seed production in the South. *Soil Sci.* 57, 1944 (75-84).
- 633.3 : 546.77** Bertrand, D. Significance of molybdenum as a trace element for leguminous plants. *C.R.* 211, 1940 (512-514). C.A. 36 (517).
- VII, 4 **633.3 : 546.77** Vinogradova, Kh. G. Presence of molybdenum in Leguminosae. *C.R. Acad. Sci. U.S.S.R.* 40, 1943 (26-29). [E.]
- VI, 2 **633.3-1.415.1** Hunter, J. H. ; Lewis, R. D. Relation of acid-forming fertilizer on pecan orchards to soil reaction and growth of winter legumes. *Proc. S. E. Plant Grow. Assoc.* 36, 1942 (10, 12-13, 15-19). C.A. 36 (5306).
- IV, 2 **633.3-1.416.1** Ludwig, C. A. ; Allison, F. E. Further experiments concerning diffusion of nitrogenous compounds from healthy legume nodules to roots. *Amer. J. Bot.* 27, 1940 (719-725).
- VI, 4 **633.3-1.459** Harris, H. L. ; Drew, W. B. On the establishment and growth of certain legumes on eroded and uneroded sites. *Ecology* 24, 1943 (135-148).
- 633.3-1.459-1.61** Graham, E. H. Legumes for erosion control and wildlife. *U.S.D.I. Misc. Pub.* 412, 1941, pp. 153.
- 633.3-1.584** Geus, J. G. de. Advantages and disadvantages of a leguminous cover. *Boezelbouw* 15, 1941 (152-158). [Du.]
- IV, 3 **633.3-1.5 : 633.15** McClelland, C. K. Effects of interplanting legumes with corn. *Ark. Agric. Expt. Sta. Bull.* 393, 1940, pp. 29. E.S.R. 83 (760).
- 633.3-1.584** Murneek, A. E. ; Hibbard, A. D. Substitutes for nitrogen fertilizers in orcharding. *Missouri Agric. Expt. Sta. Circ.* 236, 1942, pp. 7. C.A. 36 (7210).
- IV, 1 **633.3-1.821.1 : 581.192** Vanderford, H. B. Effect of different lime levels on the growth and composition of some legumes. *J. Amer. Soc. Agron.* 32, 1940 (789-793).
- 633.3-1.821.1 : 581.192** Blaser, R. E. ; Volk, G. M. ; Smith, F. B. The yield, composition, and nodulation of several clover varieties as affected by sources of calcium and phosphorus in combination with other fertilizers on several soils. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (298-302).
- 633.3-2.4-1.58** Weimer, J. L. Root rot of Austrian winter peas and vetches. *Phytopath.* 30, 1940 (708). Herb. Abs. 10 (370).
- IV, 5 **633.31 : 546.27** Diakova, E. V. The effect of boron on seed production of lucerne in limed podzol soils. *Khim. Sotsial. Zemled.* No. 2-3, 1940 (70-73). Herb. Abs. 11 (72).
- VI, 1 **633.31 : 546.27** Diakova, E. V. The application of boron fertilizers in the chernozem region for raising the yield of lucerne seed. *Vest. S.-Kh. Nauk. Kormodol.* No. 2, 1940 (38-44). Herb. Abs. 12 (158).
- V, 5 **633.31 : 546.27** Hutcheson, T. B. ; Cocke, R. P. Effects of boron on yield and duration of alfalfa. *Va. Agric. Expt. Sta. Bull.* 336, 1941, pp. 9. E.S.R. 86 (616).

# FERTILIZERS AND GENERAL AGRONOMY

- 633.31 : 546.27** Piland, J. R. ; Ireland, C. F. Application of borax produces seed set in alfalfa. *J. Amer. Soc. Agron.* 33, 1941 (938-939).
- 633.31 : 546.27** Grizzard, A. L. ; Matthews, E. M. The effect of boron on seed production of alfalfa. *J. Amer. Soc. Agron.* 34, 1942 (365-368). V, 4
- 633.31 : 546.27** Dunklee, D. E. ; Midgley, A. R. Need and use of boron for alfalfa. *Vt. Agr. Expt. Sta. Bull.* 501, 1943, pp. 24. E.S.R. 90 (180). VII, 3
- 633.31 : 546.77** Bortels, H. Supplementary communication on the effects of applying molybdenum to field plots of lucerne. *Zbl. Bakt.* 11, 103, 1941 (129-133). [G.] IV, 5
- 633.31 : 581.144.2** Kovalev, A. M. The yield of hay and roots in lucerne varieties and their effect on soil structure. *Sotsial. Zern. Khoz.* No. 2, 1940 (97-110). Herb. Abs. 12 (11). V, 4
- 633.31 : 581.144.2** Saharina, M. Root and after-harvest remains of lucerne and their decomposition under conditions of irrigation in the Trans Volga province. *Sotsial. Zern. Khoz.* No. 5, 1940 (95-101). Herb. Abs. 12 (11). V, 4
- 633.31 : 581.192.6** Gushin, I. V. The salt resistance of blue and yellow alfalfa. *Dokl. Akad. S.-Kh. Nauk* No. 7, 1940 (13-18). C.A. 36 (673). VI, 2
- 633.31-1.4 : 576.809.6** Katznelson, H. ; Wilson, J. K. Occurrence of *Rhizoglyphus* in terrophage in soils. *Soil Sci.* 51, 1941 (59-63).
- 633.31-1.432.2** Hely, F. W. The place of lucerne and annual species of *Medicago* in Australian cereal areas. *J. Aust. Inst. Agric. Sci.* 8, 1942 (93-100).
- 633.31-1.5** Van der Merwe, W. Re-establishment of old lucerne lands. *Faun. S. Africa* 15, 1940 (440).
- 633.31-1.5** Westover, H. L. Growing alfalfa. *U.S.D.A. Farm. Bull.* 1722, 1941, pp. 29.
- 633.31-1.5** Borst, H. L. ; Yoder, R. E. The trash mulch method of reclaiming broomsedge and poverty grass lands with alfalfa. *Ohio Agr. Expt. Sta. Bmo. Bull.* 28, 1943 (114-119). VII, 1
- 633.31-1.5** Chamberlain, H. de O. Lucerne on sand country. *N.Z. J. Agr.* 67, 1943 (273, 275). VII, 1
- 633.31-1.582** Rogoza, I. D. The period of time occupied by lucerne in the rotation, and its effect on soil fertility. *Vest. S.-Kh. Nauk Kormodob.* No. 2, 1940 (27-37). Herb. Abs. 12 (147). VI, 1
- 633.31-1.582** Walther, G. When can lucerne follow lucerne? *Mitt. Landw.* 57, 1912 (597). Herb. Abs. 13 (308). VII, 2
- 633.31-1.67** Berezhnov, M. F. The norm of irrigation for seed lucerne. *Sotsial. Zern. Khoz.* No. 2, 1940 (111-115). Herb. Abs. 12 (23). V, 4
- 633.31-1.67** Bukharev, F. I. The norm of irrigation of lucerne grown for hay in the Kuibyshev province. *Sotsial. Zern. Khoz.* No. 4, 1940 (108-120). Herb. Abs. 12 (23). V, 4
- 633.31-1.67** Fortier, H. F. Irrigation practices in growing alfalfa. *U.S.D.A. Farm. Bull.* 1630, 1940, pp. 26.
- 633.31-1.67** Kondrashev, S. K. The irrigation of lucerne. *Vest. S.-Kh. Nauk. Kormodob.* No. 2, 1941 (78-86). Herb. Abs. 14 (18).



# BIBLIOGRAPHY OF SOIL SCIENCE

- VI, 3     **633.31-1.811**—**Hunter, A. S.** A comparison of the response of alfalfa to identical Ca-K ratios in soil and in sand cultures. *Soil Sci.* 55, 1943 (361-367).
- VI, 2     **633.31-1.811**—**Hunter, A. S.**; **Toth, S. J.**; **Bear, F. E.** Calcium-potassium ratios for alfalfa. *Soil Sci.* 55, 1943 (61-72).
- VI, 4     **633.31-1.811.7**—**Thomas, M. D.**; **Hendricks, R. H.**; **Collier, T. R., et al.** The utilization of sulphate and sulphur dioxide for the sulphur nutrition of alfalfa. *Plant Physiol.* 18, 1943 (345-371).
- 633.31-1.811.91**—**Hastings, S. H.**; **Dean, H. K.** Percolation and water requirement studies with alfalfa by means of lysimeters in Oregon. *Oreg. Agric. Expt. Sta. Bull.* 404, 1942, pp. 16. E.S.R. 87 (860).
- VII, 1    **633.31-1.821.1**—**Brown, B. A.**; **Munsell, R. I.** Fractional liming for alfalfa. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (279-282). Biol. Abs. 17 (2170).
- V, 4     **633.31-1.85**—**Aznarez, M.** Manurial trials with lucerne. *Arch. Fitotec. Uruguay* 3, 1939 (143-163). Herb. Abs. 12 (11). [Sp.e.g.]
- VI, 1     **633.31-1.85**—**Hinkle, D. A.** Use of phosphatic fertilizers on alfalfa. *N. Mex. Agric. Expt. Sta. Bull.* 289, 1942, pp. 19. E.S.R. 87 (368).
- IV, 1     **633.31-2.19 : 546.27**—**Brown, B. A.**; **King, A.** Soil conditions under which alfalfa responded to boron. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (310-313).
- 633.31-2.19 : 546.27**—**Baur, K.**; **Huber, G. A.**; **Wheeting, L. C.** Boron deficiency of alfalfa in western Washington. *Wash. Agric. Expt. Sta. Bull.* 396, 1941, pp. 16.
- 633.31-2.19 : 546.27**—**Donaldson, R. W.** Use boron and potash for better alfalfa. *Better Crops with Plant Food* 25, No. 2, 1941 (9-11, 35-36).
- 633.31-2.19 : 546.27**—**Hendricks, H. E.** Borax helps prevent alfalfa yellows in Tennessee. *Better Crops with Plant Food* 25, No. 10, 1941 (10-12, 42).
- 633.31-2.19 : 546.27**—**Colwell, W. E.**; **Lincoln, C.** A comparison of boron deficiency symptoms and potato leafhopper injury on alfalfa. *J. Amer. Soc. Agron.* 34, 1942 (495-498).
- 633.31-2.19 : 546.27**—**Dregne, H. E.**; **Powers, W. L.** Boron fertilization of alfalfa and other legumes in Oregon. *J. Amer. Soc. Agron.* 34, 1942 (902-912).
- VI, 4     **633.31-2.19 : 546.27**—**Washko, J. B.** Influence of borax and potash on alfalfa yellows. *Tenn. Agric. Expt. Sta. Circ.* 83, 1943, pp. 4. E.S.R. 88 (772).
- V, 2     **633.32 : 546.77**—**Dmitrlev, K. A.** Biological significance of molybdenum and its effect on the development and yield of clover. *Dokl. Akad. S.-Kh. Nauk* No. 11, 1941 (15-17). [R.]
- VI, 1     **633.32 : 576.809.6**—**Dorosinsky, L. M.** The effect of bacteriophage on the development of clover. *Mikrobiologia* 10, 1941 (208-214). C.A. 36 (4959). Biol. Abs. 16 (1852).
- VII, 3    **633.32 : 581.192.6**—**Gauch, H. G.**; **Magistad, O. C.** Growth of strawberry clover varieties and of alfalfa and Ladino clover as affected by salt. *J. Amer. Soc. Agron.* 35, 1943 (871-880). C.A. 38 (200). E.S.R. 90 (316).

# FERTILIZERS AND GENERAL AGRONOMY

- 633.32-1.416—Rybak, V. N.** The effect of clover in crop rotation on some chemical properties of the soil and the yield of beets. *Sveklorich. Polrvodstvo* No. 10-11, 1939 (59). C.A. 36 (2980). VI, 3
- 633.32-1.461.52—Dorosinsky, L. M.** Activity of clover-nodule bacteria. *Mikrobiologia* 8, 1939 (834-837). C.A. 35 (3021).
- 633.32-1.81—Bausina, K. F.** The effect of mineral fertilizers on the yield of clover seed. *Khim. Sotsial. Zemled.* No. 5, 1940 (56-58). C.A. 36 (7211).
- 633.32-1.81—Saxby, S. H.** Introduction of clover into tussock country. Trial laid down in Central Otago. *N.Z. J. Agric.* 61, 1940 (183-188). IV, 1
- 633.32-1.821.2—Vinogradov, A. S.** The use of gypsum and phosphogypsum for manuring clover. *Len i Konoplia* No. 10-11, 1939 (39-41). C.A. 36 (2668). VI, 3
- 633.321 : 546.27 : 546.47—Schropp, W.; Arenz, B.** Pot experiments with increasing amounts of boron and zinc applied to red clover receiving various amounts of water. *Bodenk. Pflernähr.* 23, 1941 (333-342). [G.]
- 633.321 : 546.711—Dmitriev, K. A.** Significance of manganese for the development and increased hay yields of red clover. *Dokl. Akad. S.-Kh. Nauk* No. 9, 1941 (37-40). [R.] V, 2
- 633.321-1.461.52—Tlunov, A. N.** The dynamics of nitrogen accumulation in red clover after a single cutting. *Sovet. Agron.* No. 5, 1940 (42-48). Herb. Abs. 13 (204). VII, 2
- 633.321-1.81—Rubashev, A. B.** The biochemical peculiarities of red clover. *Sborn. Rab. VNIIS* 1939 (197-209, 210-222). Pedology No. 5, 1940 (108).
- 633.322 : 546.27—Vermont Agricultural Experiment Station.** Pasture improvements. *Vt. Agric. Expt. Sta. Bull.* 463, 1940, pp. 14. E.S.R. 84 (158). IV, 4
- 633.322 : 633.2.03—Dodd, D. R.** Some factors affecting the content, fluctuation, and distribution of white clover in permanent sod areas in Ohio. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (288-297).
- 633.322-1.4 : 581.192—Robinson, R. R.** The mineral content of various clones of white clover when grown on different soils. *J. Amer. Soc. Agron.* 34, 1942 (933-939).
- 633.322-1.461.52—Wilson, J. K.** The loss of nodules from legume roots and its significance. *J. Amer. Soc. Agron.* 34, 1942 (460-471).
- 633.322-1.5—Eby, C.** Ladino clover. *N.J. Agric. Expt. Sta. Circ.* 408, 1941, pp. 7. E.S.R. 85 (184).
- 633.322-1.5—Gray, S. D.** Growing Ladino clover in the North-east. *Better Crops with Plant Food* 26, No. 1, 1942 (17-18, 38).
- 633.322-1.81—Uverud, H.** Experiments to determine how manuring affects the development of white clover. *Arb. Beitekr. Norge* (1940-41) 15, 1942 (205-253). Herb. Abs. 13 (19).
- 633.322-1.811.3—Ahlgren, G. H.** Some effects of volume rate of solution supply and of potassium concentrations on the growth of white clover. *Soil Sci.* 52, 1941 (229-234). Biol. Abs. 15 (2253).
- 633.322-1.847.2—Goldschmidt, W. B.; Orchard, E. R.** The inoculation of clover. The effect of different strains of nodule bacteria on the growth and composition of *Trifolium repens*. *Farm. S. Africa* 15, 1940 (411-413, 419).

## BIBLIOGRAPHY OF SOIL SCIENCE

- 633.322-1.847.2—Gruber, F.** The effect of soil inoculation on the development of vegetative structures of white clover. *Magyar Kir. Gazdas. Akad. Munk.* (1939) 2, 1940 (78-117). Biol. Abs. 15 (974).
- 633.325—Ullmann, W.** Strawberry or Friesian clover. *Forsch.-Dienst.* 11, 1941 (177-187). [G.]
- 633.325—Ullmann, W.** Observations on strawberry or Friesian clover: possibilities for its cultivation and breeding and for its agricultural application in Greater Germany. *ForschDienst.* 11, 1941 (533-548). [G.]
- IV, 2 **633.325-1.4—Austin, W. W.** Strawberry clover in the northern Great Plains. *Soil Conservation* 6, 1940 (35-37). Herb. Abs. 10 (311).
- IV, 4 **633.325-1.415.3 Reclamation Era.** Growing strawberry clover on wet and alkaline lands. *Reclam. Via* 29, 1939 (80, 82). Herb. Abs. 11 (12).
- 633.325-1.415.3 Walker, C.** Strawberry clover for wet or saline soils. *N.Z. J. Agr.* 62, 1941 (355).
- 633.325-1.415.3 Weihing, R. M.; Watson, I.** Strawberry clover shown to be valuable on wet, saline land as forage for sheep. *Colo. Farm Bull.* 3, No. 2, 1941 (3-4).
- VII, 1 **633.326-546.77—Fricke, E. F.** Pasture establishment on monstone soil at Cressy. *Trans. J. Agr.* 14, 1943 (69-73).
- 633.326-1.5 Smit, N. J.** Subterranean clover. *Farm. S. Africa* 16, 1941 (171-172, 184, 186).
- VII, 2 **633.326-1.855 Smith, C. A. N.** Superphosphate and basic superphosphate in the establishment of subterranean clover on a lateritic sandy loam soil. *J. Dept. Agr. S. Aust.* 47, 1944 (289-302).
- VI, 2 **633.327-546.27 Naftel, J. A.** Soil liming investigations: VI. Response of crimson clover to boron with and without lime on Coastal Plains soils. *J. Amer. Soc. Agron.* 34, 1942 (975-988).
- 633.327-1.5 Stephens, J. L.; Hollowell, E. A.** Crimson clover in the Coastal Plain of the Southeast. *J. Amer. Soc. Agron.* 34, 1942 (1057-1059).
- VII, 4 **633.327-1.85 Stitt, R. E.** Effect of moisture, seeding dates, and fertilizer on stands and yields of crimson clover. *J. Amer. Soc. Agron.* 36, 1944 (464-467).
- VI, 2 **633.34-546.27 Hodgkiss, W. S.; Hageman, R. H.; McHargue, J. S.** The amount of boron absorbed by soybean plants and its effect on their growth. *Plant Physiol.* 17, 1942 (652-660).
- 633.34-546.47 Earley, E. B.** Minor element studies with soybeans: I. Varietal reaction to concentrations of zinc in excess of the nutritional requirement. *J. Amer. Soc. Agron.* 35, 1943 (1012-1023).
- IV, 2 **633.34-581.144.2 Dittmer, H. J.** A quantitative study of the subterranean members of soybean. *Soil Conservation* 6, 1940 (33-34). Herb. Abs. 10 (313).
- 633.34-1.4-581.192 Cartter, J. L.; Hopper, T. H.** Influence of variety, environment, and fertility level on the chemical composition of soybean seed. *U.S.D.A. Tech. Bull.* 787, 1942, pp. 66.
- 633.34-1.415.1 Gericke, S.** Acidity and manurial requirements of the soya bean. *Bodenk. PflErnahr.* 25, 1941 (136-140). [G.]
- V, 5 **633.34-1.459—Smith, D. D.** Growing soybeans with minimum erosion. *Soil Conservation* 7, 1942 (295-297, 300).

# FERTILIZERS AND GENERAL AGRONOMY

- 633.34-1.459 -Smith, D. D.** Soybeans and soil conservation. *Missouri Agric. Expt. Sta. Bull.* 469, 1943, pp. 16. E.S.R. 89 (519). VII, 2
- 633.34-1.461.52 -Castelli, T.** Recent research on the production of root nodules in the soybean. *Ital. Agric.* 77, 1940 (253-261). Herb. Abs. 10 (312). [I.]
- 633.34-1.461.52 -Sammet, K.; Fischer, R.** Studies on the influence of different amounts of potassium and phosphoric acid on the yield of nodules and the condition of the nodule bacteria in the soybean. *Zbl. Bakt.* 11, 102, 1940 (425-432). C.A. 35 (1920). IV, 5
- 633.34-1.461.52 -Punyasingha, T.** The relation of varieties of the soybean to various strains of the Rhizobia. *Thai Sci. Bull.* 3, 1941 (11-27). E.S.R. 86 (601).
- 633.34-1.461.52 -Wilson, J. B.; Umbreit, W. W.** Growth studies of *Rhizobium japonicum*. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (262-263). IV, 6
- 633.34-1.461.52 -Boyes, J.; Bond, G.** The effectiveness of certain strains of the soya-bean nodule organism when associated with different varieties of the host plant. *Ann. Appl. Biol.* 29, 1942 (103-108). Hort. Abs. 12 (154).
- 633.34-1.461.52 -Norman, A. G.** Persistence of *Rhizobium japonicum* in soil. *J. Amer. Soc. Agron.* 34, 1942 (499). V, 5
- 633.34-1.461.52-1.81 -Poschenrieder, H.; Sammet, K.; Fischer, R.** The effects of various levels of supply of potash and phosphoric acid on the formation\* of nodules and on the activity of nodule bacteria in the soybean. *Zbl. Bakt.* 11, 102, 1940 (388-395, 425-432). ForschDienst. 11 (99). [G.]
- 633.34-1.461.52-1.81- Fischer, R.; Sammet, K.; Poschenrieder, H.** Relationships between nutrient uptake, nodule formation and the activity of nodule bacteria in soybeans under the influence of various manurial treatments. *Bodenk. PflErnähr.* 27, 1942 (181-197). [G.]
- 633.34-1.461.52-1.81 -Poschenrieder, H.; Lesch, W.** Investigations of the effect of single elements in long-continued manurial trials on the development and nutrient uptake of the root nodules of soya beans. *Bodenk. PflErnähr.* 32, 1943 (1-16). [G.]
- 633.34-1.461.52-1.85 -Konishi, K.; Imanishi, A.; Hasegawa, G.** Effects of phosphoric acid and calcium upon the growth and nodulation of soybeans. *J. Sci. Soil Japan* 15, 1941 (1-10). [I.]
- 633.34-1.461.52-1.85 -Lüdecke, H.** The importance of phosphoric acid for growth of soya beans and for the activity of their nodule bacteria. *Phosphorsäure* 10, 1941 (196-204). *Zbl. Bakt.* 11, 104 (230). V, 2
- 633.34-1.5 -Sherman, W. C.; Albrecht, H. R.** Edible soybeans. *Ala. Agric. Expt. Sta. Bull.* 255, 1942, pp. 16.
- 633.34-1.531 -Wang, S.** A cultural study of soybean. *Nanking J. Cl.* 11, No. 3, 1941 (1-8). [E.] VII, 2
- 633.34-1.81 -Arnold, H. C.** Soya beans. Results of trials season 1940-1941. *Rhod. Agric. J.* 38, 1941 (475-486). V, 1
- 633.34-1.81 -Lüdecke, H.; Sammet, K.; Lesch, W.** Investigations on the nutrient requirements of soya beans and on the influence of increasing amounts of phosphoric acid and potash on the yield and composition of the beans. *Bodenk. PflErnähr.* 25, 1941 (1-31). [G.]

# BIBLIOGRAPHY OF SOIL SCIENCE

- VII, 3    **633.34-1.81—Probst, A. H.** Influence of fertilizer, fertilizer placement, soil moisture content, and soil type on the emergence of soybeans. *J. Amer. Soc. Agron.* 36, 1944 (111-120).
- 633.34-1.81—Vittum, M. T.; Mulvey, R. R.** More about soybean fertilization. *Better Crops with Plant Food* 28, No. 5, 1944 (6-10, 45-46).
- IV, 6    **633.34-1.81 : 581.192—Cartter, J. L.** Effect of environment on composition of soybean seed. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (125-130).
- 633.34-1.81 : 581.192—Sterz, M.** The effect of various treatments with artificial fertilizers on oil formation in the seeds of the soya bean plant. *Bodenk. PflErnahr.* 24, 1941 (34-54). [G.]
- IV, 4    **633.34-1.83—Giesecke, F.; Yi-Lung, L.** The influence of increasing potash applications on the yield and composition of soybeans. *Ernahr. Pfl.* 36, No. 7, 1940. *Better Crops with Plant Food* 25, 1 (35).
- 633.34-1.847.2 Ocampo, J. A.** The soya bean and some notes on its cultivation and inoculation with nitrogen-fixing bacteria. *Peru Esta. Expt. Agric. La Molina Circ.* 52, 1940, pp. 21. [Sp.]
- 633.34-1.847.2—Gukova, M. M.; Butkevich, V. S.** Influence of aeration and soil temperature on the development of inoculated and uninoculated soya plants. *C.R. Acad. Sci. (U.S.S.R.)* 31, 1941 (937-940). E.S.R. 87 (777).
- 633.34-1.847.2 Arrazola, J. M.; Andrés, J. A.; Tagüña, J. M. X.** Bacterial "inoculation" of legume seeds with *R. leguminosarum*. *Bot. Inst. Investig. Agron. Madrid* No. 10, 1944 (1-56). [Sp.Eng.]
- VI, 3    **633.34-1.85 Krügel, C.; Dreyspring, C.; Heinrich, F.** The effect on soybeans of increasing phosphoric-acid fertilizing. *Bodenk. PflErnahr.* 20, 1940 (307-316). C.A. 36 (4953). [G.]
- VII, 4    **633.34-1.85 Sammet, K.** The importance of phosphoric acid for leguminous crops with special reference to soybeans. *Phosphorsäure* 1, 1942 (115-123). C.A. 38 (3406).
- 633.35-1.461.52 Gaw, H. Z.** Studies on root nodule bacteria of vetch (*Vicia* sp.). *Chung. Natl. Wuhan Univ. Res. Bull. Biol.* 1, 1943, pp. 49. [E.]
- VII, 1    **633.35-1.81 : 581.192 Hoover, G. D.** Effect of lime and fertilizer treatments on yield and composition of vetch and yield of cotton following vetch. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (283-289).
- IV, 4    **633.363-1.5—Hutchings, C. D.** The edua pea. *J. Jamaica Agric. Soc.* 44, 1940 (510).
- 633.364-1.5—McKee, R.** Lespedeza culture and utilization. *U.S.D.A. Farm. Bull.* 1852, 1940, pp. 13.
- 633.364-1.5—Anderson, K. L.** Korean lespedeza in Kansas. *Kans. Agric. Expt. Sta. Circ.* 210, 1941, pp. 12. *Biol. Abs.* 18 (355).
- 633.364-1.5—Stephens, J. L.** Lespedeza in the Coastal Plain area. *J. Amer. Soc. Agron.* 34, 1942 (685). E.S.R. 88 (761).
- 633.364-1.5—Sears, O. H.; Burlison, W. L.** Lespedeza : its place in Illinois agriculture. *Ill. Agric. Expt. Sta. Circ.* 561, 1943, pp. 19.
- IV, 4    **633.364-1.58—Helm, C. A.** Management of Korean lespedeza. *Missouri Agric. Expt. Sta. Circ.* 210, 1940, pp. 8.

# FERTILIZERS AND GENERAL AGRONOMY

- 633.364-1.81—Grizzard, A. L. ; Hutcheson, T. B.** Experiments with lespedeza. *Va. Agric. Expt. Sta. Bull.* 328, 1940, pp. 20. E.S.R. 84 (754).
- 633.364-1.81—Grizzard, A. L.** Lespedeza is not a poor-land crop. *Better Crops with Plant Food* 27, No. 3, 1943 (6-8, 50-52). C.A. 37 (4188). VII, 2
- 633.364-1.81 : 581.192—Blaser, R. E. ; Volk, G. M. ; Stokes, W. E.** Deficiency symptoms and chemical composition of lespedeza as related to fertilization. *J. Amer. Soc. Agron.* 34, 1942 (222-228).
- 633.366-1.432—Manson, P. W.** A laboratory study of the drainage requirements of sweet clover. *Minn. Agric. Expt. Sta. Tech. Bull.* 144, 1940, pp. 28. Biol. Abs. 15 (515). IV, 4
- 633.366-1.5—Wiancko, A. T. ; Mulvey, R. R.** Sweet clover—its culture and uses. *Indiana Agric. Expt. Sta. Circ.* 261, 1940, pp. 14. E.S.R. 85 (758).
- 633.366-1.5—Harper, H. J.** Sweet clover for soil improvement. *Okla. Agric. Expt. Sta. Circ.* 94, 1941, pp. 31. Biol. Abs. 15 (1783).
- 633.366-1.5—Manke, K. F.** Growing sweet clovers in Texas. *Tex. Agric. Expt. Sta. Prog. Rept.* 803, 1942, pp. 4. Herb. Abs. 13 (300).
- 633.366-1.61—Yoakum, K.** Sweetclover's unique role in southwest. *Soil Conservation* 9, 1944 (187-189).
- 633.366-1.81—Harper, H. J.** Wide row spacing and row application of limestone and phosphate for sweet clover production. *Okla. Agric. Expt. Sta. Bull.* B-248, 1941, pp. 29.
- 633.366-1.83—Albrecht, W. A.** Sweet clover responds to potash fertilization. *Better Crops with Plant Food* 28, No. 6, 1944 (19, 49-50). VII, 4
- 633.367-1.415.1—Schander, H.** The displacement of optimum soil reaction during development of *Lupinus luteus*. *Bodenk. Pfl.-Ernähr.* 20, 1941 (129-151). C.A. 37 (2116). VII, 3
- 633.367-1.445.2—Elkonin, N. G.** The significance of lupins in relation to deepening and cultivation of the arable layer of podzol soils. *Selekt. Semen.* No. 12, 1939 (16-18). Herb. Abs. 11 (13). IV, 4
- 633.367-1.461.1 3—Ezubchik, A. A.** Regulation of lupin decomposition in soils. *Trudy Akad. Nauk BSSR* No. 1-2, 1939 (69-94). Pedology No. 6, 1940 (128). IV, 2
- 633.367-1.5—Müller, G.** A large-scale experiment with yellow sweet lupins. *Mitt. Landw.* 55, 1940 (349). Mezög. Kutat. 13 (155).
- 633.367-1.5—Opitz, K. ; Tamm, E. ; Wiese, K., et al.** Experiences and experiments relating to manuring, cultivation and harvesting of yellow sweet lupins. *Landw. Jahrb.* 90, 1940 (759-792, 1019A). *ForschDienst.* 12 (8). [G.]
- 633.367-1.5—Oldershaw, A. W.** Lupins as a light-land crop. *J. Min. Agric.* 48, 1941 (164-168).
- 633.367-1.5—Neuhauss, A.** The production of protein by the cultivation of sweet lupins. *Mitt. Landw.* 57, 1942 (897-899). C.A. 38 (3770).
- 633.367-1.5—McKee, R. ; Ritchey, G. E.** Lupines: new legumes for the South. *U.S.D.A. Farm. Bull.* 1946, 1943, pp. 9.
- 633.367-1.5—Oldershaw, A. W.** Sweet lupins. *J. Min. Agric.* 51, 1944 (128-134).

# BIBLIOGRAPHY OF SOIL SCIENCE

- VI, 2     **633.367-1.81- Frankovski, E.** The use of mineral fertilizers in rotation with lupins. *Khm. Sotsial. Zemled.* 10, No. 1, 1941 (24-28). C.A. 36 (5942).
- IV, 6     **633.367-1.811.1 : 581.192 Botha, P. J.** The influence of nitrate nutrition on the alkaloid content of *Lupinus luteus* L. *S. Afric. J. Sci.* 37, 1941 (164-174).
- V, 6     **633.367-1.847.2 Smith, W. P. C.** The inoculation of New Zealand lupins in relation to green manuring practice. *J. Dept. Agric. W. Aust.* 19, 1942 (52-56).
- IV, 5     **633.367-2.19-1.416.4 Parsche, F.** Late chlorosis of lupinus II. *Bererk. Pflanzsch.* 19, 1940 (55-80). C.A. 35 (3292). [G.]  
      **633.372-1.5 Reihling, K.** An experiment with broom on degraded sandy soil. *Act. Forest. Belgica* 116, 1940 (197-228). Biol. Abs. 15 (993).  
      **633.374-1.5 McKee, R. ; Schoth, H. A.** Birdsfoot trefoil and big trefoil. *U.S.D.A. Circ.* 625, 1941, pp. 13.  
      **633.375-1.433.1 Coile, T. S. ; Gaiser, R. N.** Effect of soil aeration on the foliation of black locust seedlings. *J. Forestry* 40, 1942 (600-661). E.S.R. 87 (804).  
      **633.375-1.5 Gibbs, J. A. ; Craig, J. C.** Black locust for good land use and profit. *Soil Conservation* 8, 1943 (157-159).  
      **633.377 Pound, F. J.** "Barbasco". A growing industry in the Amazon Valley. *Proc. Agric. Soc. Trop. Ind.* 43, 1943 (269, 271, 273, 275).  
      **633.377 Higbee, E. C.** Legumes: barbasco capital of the world. *Agric. in Americas* 4, 1944 (83-86, 95-96).
- IV, 4     **633.377-1.5 Worsley, R. R. Le G.** Some experiments on staking detritus. *J. Agric. Sci.* 6, 1941 (236).  
      **633.379-1.5 Tabor, P.** Observations of kudzu, *Pueraria thurberiana* Benth., seedlings. *J. Amer. Soc. Agron.* 34, 1942 (500-501).  
      **633.379-1.5 McKee, R. ; Stephens, J. L.** Kudzu as a farm crop. *U.S.D.A. Farm Bull.* 1923, 1943, pp. 13.  
      **633.379-1.582 Richardson, E. C.** The use of kudzu in a rotation system. *Soil Conservation* 8, 1943 (162-164).
- V, 2     **633.379-1.81 Hamilton, R. A. ; Pillay, K. S.** The manuring of *Centrosema pubescens*. *J. Rubber Res. Inst. Malaya* 11, 1941 (25-43).

## 633.4 ROOT CROPS

- IV, 5     **633.4-1.816.3 Lewis, A. H.** The placement of fertilizers. I. Root crops. *J. Agric. Sci.* 31, 1941 (295-307).
- V, 4     **633.4-1.83 -Becker, A.** Is it possible to use potassic fertilizers for root crops? *Ztschr. Spiritusindust.* 63, 1940 (140). B.C.A.B. III, 1942 (69).
- VI, 2     **633.41-1.81 : 581.192 Blackmore, R. ; Neuman, F. ; Brown, H. D., et al.** Relation of fertility levels and temperature to the color and quality of garden beets. *Proc. Amer. Soc. Hort. Sci.* (1942) 40, 1942 (545-548). C.A. 36 (6736).
- V, 5     **633.41-1.811 Lehr, J. J.** The importance of sodium for plant nutrition: III. The equilibrium of cations in the beet. *Soil Sci.* 53, 1942 (399-411).

# FERTILIZERS AND GENERAL AGRONOMY

- 633.41-2.19 : 546.27** - Powers, W. L. ; Bouquet, A. G. B. IV, 3  
Use of boron in controlling canker of table beets. *Oreg. Agric. Expt. Sta. Circ. Inform.* 195, 1939, pp. 6. *Biol. Abs.* 15 (137).
- 633.41-2.19 : 546.27** - Cook, R. L. ; Millar, C. E. IV, 2  
beets need boron. *Mich. Agric. Expt. Sta. Quart. Bull.* 22, 1940 (272-278). C.A. 34 (7514).
- 633.41-2.19 : 546.27** - Raleigh, G. J. ; Lorenz, O. A. ; VII, 1  
Sayre, C. B. Control of internal breakdown of table beets by the use of boron. *Proc. Amer. Soc. Hort. Sci.* (1939) 37, 1940 (791-792). B.C.A.B. III, 1943 (207).
- 633.41-2.19 : 546.27** - Raleigh, G. J. ; Lorenz, O. A. ; V, 1  
Sayre, C. B. Studies on the control of internal breakdown of table beets by the use of boron. *Cornell Agric. Expt. Sta. Bull.* 752, 1941, pp. 16. *Better Crops with Plant Food* 25, 7 (29).
- 633.41-2.19 : 546.27** - Lorenz, O. A. VI, 3  
Internal breakdown of table beets. *Cornell Agric. Expt. Sta. Mem.* 246, 1942, pp. 42. E.S.R. 88 (207).
- 633.41-2.19 : 546.27** - Binnie, R. R. VII, 2  
Boron improves canning beets. *Better Crops with Plant Food* 27, No. 1, 1943 (19-22, 49-51). C.A. 37 (3546).
- 633.41-2.19 : 546.27** - Walker, J. C. ; Jolivet, J. P. ; VI, 3  
McLean, J. G. Boron deficiency in garden and sugar beet. *J. Agric. Res.* 66, 1943 (97-123).
- 633.41-2.19 : 546.27** - Walker, J. C. ; Schroeder, W. T. ; VII, 4  
Kuntz, J. E. Borax sprayed on beets controls black spot. *Better Crops with Plant Food* 28, No. 4, 1944 (49-21, 49-50).
- 633.42-1.81** - Schropp, W. ; Arenz, B. Fertilizer experiments with winter oilseeds. *Bodenk. PflErnähr.* 18, 1940 (315-330). C.A. 35 (562). [G.]
- 633.42-1.81** - New Zealand Journal of Agriculture. Fertilizer mixtures for rape. *N.Z. J. Agric.* 62, 1941 (340).
- 633.42-1.81** - Wellborn, F. L. ; Phillips, M. M. ; Obenshain, S. S. The effect of certain natural fertilizer materials on the growth of turnips. *Proc. Assoc. S. Agric. Workers* 43, 1942 (79-80). C.A. 37 (1821).
- 633.42-1.81 : 577.16** - Reder, R. ; Ascham, L. ; Eheart, VI, 4  
M. S. Effect of fertilizer and environment on the ascorbic acid content of turnip greens. *J. Agric. Res.* 66, 1943 (375-388).
- 633.42-1.81 : 581.192** - Schmitt, L. The effect of manures and particularly of potash manures on the yield and intrinsic quality of rape. *Ernähr. Pfl.* 38, 1942 (13-14). [G.]
- 633.42-1.81 : 581.192** - Sheets, O. A. ; McWhirter, L. ; VII, 3  
Anderson, W. S., et al. Effect of fertilizer, soil composition, and certain climatological conditions on the calcium and phosphorus content of turnip greens. *J. Agric. Res.* 68, 1944 (145-190).
- 633.42-1.811** - Woodman, R. M. The nutrition of turnips. *Ann. Appl. Biol.* 28, 1941 (1-7).
- 633.42-1.83 : 581.192** - Scharrer, K. ; Schreiber, R. Pot experiments on the effects of supplying both potassium and magnesium upon the yields and the oil content of spring rape, *Camelina sativa* and white mustard. *Bodenk. PflErnähr.* 32, 1943 (204-223). [G.]



# BIBLIOGRAPHY OF SOIL SCIENCE

- IV, 5     633.42-1.84—Berkner. An experimental study of turnip types. *Pflanzenbau* 16, 1940 (430-434, 458-466). C.A. 35 (3023).
- VII, 3     633.42-1.84—Woodman, R. M. ; Paver, H. The effect of time of application of inorganic nitrogen on the turnip. *J. Agric. Sci.* 34, 1944 (49-56).
- V, 1     633.42-2.19 : 546.27—Lynch, P. B. Control of "brown heart" of turnips and swedes. *N.Z. J. Agric.* 63, 1941 (109-112).
- VII, 2     633.42-2.19 : 546.27—MacLachlan, J. D. Control of water-core of turnips by spraying with borax. *Sci. Agric.* 24, 1944 (326-331).
- VI, 3     633.426-1.81—Watson, D. J. ; Russell, E. J. The Rothamsted experiments on mangolds 1876-1940. Part I. Effect of manures on yield of roots. Part II. Effect of manures on the growth of the plant. *Emp. J. Expt. Agric.* 11, 1943 (49-64, 65-77).
- IV, 4     633.426-2.19 : 546.27 Huizinga, T. S. Brown discoloration of swedes. *Tijdschr. Pluict* 46, 1940 (141-145). *Biol. Abs.* 15 (578).
- VI, 1     633.491 : 665.7—Dostál, R. The possibilities of increasing potato yields by treating the seed with illuminating gas. *Bodenk. Pflernähr.* 28, 1942 (362-382). [G.]
- VII, 3     633.491 : 665.7 Dostál, R. Effects of acetylene, ethylene, power gas and town's gas in increasing the yields of potatoes. *Bodenk. Pflernähr.* 33, 1943 (215-235). [G.]
- 633.491-1.421 Livermore, J. R. Report of the committee on standardization of field plot technique. *Amer. Potato J.* 17, 1940 (114-123). *Biol. Abs.* 14 (1195). P.B.A. 10 (272).
- V, 5     633.491-1.427.3 Beauchamp, C. E. Composition of alcoholic leaf extract and the entire leaf of Irish potatoes as indices of soil fertility. *Plant Physiol.* 17, 1942 (165-178).
- 633.491-1.5 —Wellington, R. Potato growing in new areas. *J. Min. Agric.* 47, 1941 (224-228). *Hort. Abs.* 11 (201).
- 633.491-1.5 : 581.192—M'Intosh, T. P. Cooking quality of potatoes. *Soil. J. Agric.* 24, 1942 (38-47).
- V, 5     633.491-1.5 : 581.192—Smith, O. ; Nash, L. B. Potato quality: V. Relation of time of planting, time of harvest, and fertilizer treatment to composition and cooking quality. *J. Amer. Soc. Agron.* 34, 1942 (437-451).
- 633.491-1.5-2.536—Trant, I. F. Potatoes on freshly broken bracken land. *J. Min. Agric.* 48, 1941 (109-111).
- IV, 4     633.491-1.51—Pereira, H. C. Studies in soil cultivation. IX. The effect of inter-row tillage on the yield of potatoes. *J. Agric. Sci.* 31, 1941 (212-231).
- VII, 2     633.491-1.531—Gregory, P. H. Early planting for increased potato yields. *J. Min. Agric.* 50, 1944 (557-559).
- 633.491-1.58—Bushnell, J. Experiments with early potatoes on sandy loam in southern Ohio. *Ohio Agric. Expt. Sta. Bimo. Bull.* 27, 1942 (63-70).
- IV, 3     633.491-1.58 : 581.192—Mikhailov, V. P. Starch in potatoes with large fertilizer applications. *Dokl. Akad. S.-Kh. Nauk* No. 15, 1940 (20-23). [R.]
- 633.491-1.582—Smith, O. ; McCubbin, E. N. Potato rotation studies. *Amer. Potato J.* 17, 1940 (235-243). E.S.R. 84 (182).

# FERTILIZERS AND GENERAL AGRONOMY

- 633.491-1.582—Bushnell, J.** The problem of maintaining a silt loam suitably porous for potatoes. *Ohio Veg. Potato Grow. Assoc. Proc.* 26, 1941 (63-68). E.S.R. 86 (473). V, 4
- 633.491-1.67—Ratera, E. L.** Systems of irrigation for potatoes. *Mem. An. Inst. Mec. Hidraul. Agric. B. Aires* (1938) 1939 (7-13). Hort. Abs. 11 (202). V, 1
- 633.491-1.81—Smith, O.** Fertilizers and nutrition of potatoes, 1938. *Amer. Potato J.* 16, 1939 (53-66). B.C.A. 59 (691).
- 633.491-1.81—Fifield, W. M. ; Wolfe, H. S.** Fertilizer experiments with potatoes on the marl soils of Dade County. *Fla. Agric. Expt. Sta. Bull.* 352, 1940, pp. 40. E.S.R. 85 (187). V, 1
- 633.491-1.81—Prince, F. S. ; Blood, P. T. ; Phillips, T. G.** Response of potatoes to fertilizers. *N.H. Agric. Expt. Sta. Bull.* 324, 1940, pp. 38. C.A. 36 (4260).
- 633.491-1.81—Smith, O.** Potato fertilizer and nutrition studies in 1939. *Amer. Potato J.* 17, 1940 (262-275). C.A. 35 (259).
- 633.491-1.81—Thompson, J. K. ; Wallace, J. C.** Investigation on the effect of artificial manure on the early growth of the potato. *Karton Agric. J.* No. 6, 1940 (9-16). Hort. Abs. 11 (23). IV, 5
- 633.491-1.81—Burk, E. F.** Fertilizers for Oklahoma potatoes. *Okl. Agric. Expt. Sta. Bull.* 249, 1941, pp. 42. B.C.A.B. III, 1943 (47).
- 633.491-1.81—Innes, R. F.** The effect of manures on the yield and grading of Irish potatoes on red dirt soils of the Devon area. *J. Jamaica Agric. Soc.* 45, 1941 (161-165). IV, 6
- 633.491-1.81—Russell, E. J. ; Garner, H. V.** The Rothamsted experiments on the manuring of potatoes. Part I. Effects of nitrogenous, phosphatic and potassic manuring. Part II. Effects of inorganic manures on the yield of potatoes. Part III. The effect of fertilizers on the habit of growth and other characteristics of potatoes. General summary. *Emp. J. Expt. Agric.* 9, 1941 (195-215, 217-226, 227-235).
- 633.491-1.81—Smith, O.** Potato fertilizer and nutrition studies in 1940. *Amer. Potato J.* 18, 1941 (333-348). Hort. Abs. 12 (34). Biol. Abs. 16 (987).
- 633.491-1.81—Smith, O.** Fertilizer and nutrition studies with the potato in 1941. *Amer. Potato J.* 19, 1942 (108-118). Biol. Abs. 17 (237).
- 633.491-1.81—Teakle, L. J. H. ; Burvill, G. H. ; Morgan, E. T.** Fertilizers for potatoes in wartime. A review of potato experiments carried out in Western Australia, 1922 to 1942. *J. Dept. Agric. W. Aust.* 19, 1942 (182-194).
- 633.491-1.81—Teakle, L. J. H. ; Morgan, E. T.** Three fertilizer experiments with potatoes. *J. Dept. Agric. W. Aust.* 19, 1942 (219-226).
- 633.491-1.81—Brown, B. E.** Effect of fertilizer on potato yields. *Amer. Fert.* 98, No. 1, 1943 (7-8, 26).
- 633.491-1.81—Chuck, J. A. ; Hawkins, A. ; Brown, B. E.** Potato fertilizer-rotation studies on Aroostook Farm, 1927-1941. *Me. Agric. Expt. Sta. Bull.* 414, 1943 (103-189). E.S.R. 89 (209).

## BIBLIOGRAPHY OF SOIL SCIENCE

- IV, 3    **633.491-1.81 : 577.16—Scheunert, A. ; Reschke, J. ; Kottlemann, E.** The vitamin-C content of potatoes. IV. Influence of different fertilizers. V. Average vitamin-C content of German potatoes from autumn to June. *Biochem. Ztschr.* 305, 1940 (1-3, 4-21). C.A. 35 (5630).
- IV, 2    **633.491-1.81 : 577.16 Wachholder, K. ; Nehring, K.** The influence of fertilizing and soil on the vitamin-C content of potato varieties. II. *Bodenk. PflErnahr.* 16, 1940 (245-260). C.A. 34 (7512).
- VII, 3    **633.491-1.81 : 577.16 Karikka, K. J. ; Dudgeon, L. T. ; Hauck, H. M.** Influence of variety, location, fertilizer, and storage on the ascorbic acid content of potatoes grown in New York State. *J. Agric. Res.* 68, 1944 (49-63).
- V, 1    **633.491-1.81 : 581.144.2 Bushnell, J.** Exploratory tests of subsoil treatments inducing deeper rooting of potatoes on Wooster silt loam. *J. Amer. Soc. Agron.* 33, 1941 (823-828).
- IV, 3    **633.491-1.81 : 581.192 Cowie, G. A.** Colour of cooked potatoes. *Chem. Indust.* 59, 1940 (816). C.A. 35 (1169).
- 633.491-1.81 : 581.192 Prince, F. S. ; Blood, P. T. ; Coates, W. H., et al.** Experiment with potatoes. *N.H. Agric. Expt. Sta. Bull.* 324, 1940, pp. 38.
- IV, 1    **633.491-1.81 : 581.192 Smith, O. ; Nash, L. B.** Potato quality. I. Relation of fertilizers and rotation systems to specific gravity and cooking quality. *Amer. Potato J.* 17, 1940 (163-169). C.A. 34 (5991).
- IV, 6    **633.491-1.81 : 581.192 Vinogradsky, B. M.** How to ensure a high starch content in industrial potatoes. *Khm., Sel'sk. Zool.* No. 9, 1940 27-30. [R]
- 633.491-1.81 : 581.192 Alten, F. ; Orth, H.** Variations in the nitrogen and arginine contents of potatoes during growth under conditions of a field manurial trial. *Bodenk. PflErnahr.* 23, 1941 (313-332). [G]
- V, 2    **633.491-1.81 : 581.192 Cowie, G. A.** Blackening of potato tubers on boiling. *Nature* 148, 1941 (285-286). R.A.M. 21 (41). Hort. Abs. 11 (356).
- V, 2    **633.491-1.81 : 581.192 Harrington, F. M. ; Iverson, V. E. ; Pollinger, W. E.** Potato yields and quality as affected by commercial fertilizers. *Mont. Agric. Expt. Sta. Bull.* 392, 1941, pp. 20. E.S.R. 85 (757).
- 633.491-1.81 : 581.192 Jacob, A.** Is there a relation between the amount of rainfall and the reduction of the starch content of potatoes brought about by chloride? *ForschDienst.* 12, 1941 (577-585). [G]
- V, 2    **633.491-1.81 : 581.192 Smith, O. ; Nash, L. B.** Potato quality. III. Relation of soil reaction, irrigation and mineral nutrition to cooking quality. *Proc. Amer. Soc. Hort. Sci.* (1940) 38, 1941 (507-512). Biol. Abs. 15 (2074).
- V, 6    **633.491-1.81 : 581.192 Wallace, T. ; Jones, J. O. ; Plant, W.** Note on the composition of potato haulm from manurial treatments D, E, F, H. *Long Ashton Agric. Hort. Res. Sta. Ann. Rept.* 1941 (39).
- V, 2    **633.491-1.81 : 581.192 Westover, K. C.** The influence of fertilizers on potato tuber shape. *Amer. Potato J.* 18, 1941 (155-163). Hort. Abs. 11 (300).

# FERTILIZERS AND GENERAL AGRONOMY

- 633.491-1.81:581.192 Alten, F.; Gottwick, R. The appropriateness of the methods of Keimann and of Ewers for determination of starch. *Bodenk. PflErnähr.* 27, 1942 (149-161). [G.]
- 633.491-1.81:581.192 Drew, J. P.; Deasy, D. The influence of manures on the percentage of starch of potatoes and on the total yield of starch. *Env. J. Depl. Agric.* 39, 1942 (35-45). V, 5
- 633.491-1.81:581.192 Jones, J. O.; Plant, W. Note on the composition of leaves from potato manurial experiment. *Long Ashton Agric. Hort. Res. Sta. Ann. Rept.* 1942 (44-45).
- 633.491-1.81:581.192 Maiwald, K. Effect of fertilizers on the quality of potatoes and beets. *ForschDienst. Sonderh.* 16, 1942 (152-162). C.A. 37 (3548). VII, 2
- 633.491-1.81:581.192 Pallmann, H.; Schindler, K. Does manuring affect the solanin content of potatoes? *Schweiz. Landw. Monatsh.* No. 1, 1942 (21-27). *ForschDienst.* 13 (89).
- 633.491-1.81:581.192 Leichenring, J. M.; Donelson, E. G. Effect of fertilizer treatment on the calcium, phosphorus, and iron content of potatoes. *Food Res.* 8, 1943 (194-201). *Biol. Abs.* 17 (2174).
- 633.491-1.81:581.192 Wallace, T.; Wain, R. L. The blackening of cooked potatoes. *J. Min. Agric.* 50, 1943 (425-428). VII, 1
- 633.491-1.81-1.67:581.192 Riethus, H. The influence of fertilization and irrigation on the starch content and amylase activity of potatoes at harvest and after storage. *Landtspl. Landw. Forsch.* 4, 1941 (540-546). C.A. 37 (4515). VII, 2
- 633.491-1.811 Gusev, M. I. The loss of nutrient substances from the soil by high yields of potatoes. *Klém. Sotsial. Zemled.* No. 11-12, 1940 (37-46). C.A. 37 (6393). VII, 2
- 633.491-1.811 Hawkins, A. Rate of nutrient absorption by different varieties of potatoes in Aroostook County, Maine. *Amer. Pot.* 96, No. 6, 1942 (5-6, 24, 26). V, 4
- 633.491-1.811 Kosmat, H. The mineral and carbonic acid nutrition of plants. Investigations on potatoes. *Bodenk. PflErnähr.* 27, 1942 (203-213). [G.] V, 4
- 633.491-1.811.4 Davies, R. O.; Fagan, T. W.; John, J. L. Requirements of the potato on acidic barren land. *Emp. J. Expt. Agric.* 12, 1944 (54-60). C.A. 38 (3406). VII, 4
- 633.491-1.811.9 Hawkins, A.; Chucks, J. A.; Brown, B. E. Minor element studies on potatoes in Maine. *Amer. Potato J.* 18, 1941 (234-239). *Hort. Abs.* 11 (301). V, 2
- 633.491-1.811.9 Ellenby, C. Trace elements and "potato-sickness." *Nature* 149, 1942 (50).
- 633.491-1.813 Berkner, F. The effect of soil "condition" on the yield and quality of potatoes. *Deut. Landw. Pr.* 68, No. 8, 1941 (63-64). *ForschDienst.* 14 (98). [G.] V, 1
- 633.491-1.816.2 Brasher, E. P. The influence of split applications of complete fertilizer on the yield of Irish potatoes. *Amer. Potato J.* 18, 1941 (81-85). *Biol. Abs.* 15 (1191). IV, 5
- 633.491-1.816.3 Wallace, J. C.; Thompson, J. K. The placement of fertilisers for potatoes. *Kinton Agric. J.* 6, 1940 (5, 7, 9). IV, 2

## BIBLIOGRAPHY OF SOIL SCIENCE

- VII, 3 633.491-1.816.3—Smith, O.; Hommel, R. F.; Kelly, W. C. Relation of rate and placement of fertilizer, variety, seed spacing, and size of seed-piece to yields of potatoes. *Amer. Potato J.* 20, 1943 (267-277). E.S.R. 90 (333).
- IV, 4 633.491-1.821.1—Sveshnikov, A. M. The effect of lime at varying soil moistures on potato yields. *Khim. Sotsial, Zemled.* No. 1, 1940 (50-53). *Pedology* No. 10, 1940 (118).
- IV, 6 633.491-1.83—Tamman, A. Effectiveness of potash fertilizers for potatoes. *Khim. Sotsial, Zemled.* No. 2-3, 1940 (34-42). [R.]
- VI, 3 633.491-1.83 : 577.16—Sugawara, T. The effect of potassium on the respiration, enzyme activity and ascorbic acid content of potato tubers. *J. Sci. Soil Japan* 15, 1941 (153-164). C.A. 35 (5236).
- V, 5 633.491-1.83 : 581.192—Asdonk, T.; Jacob, A. A summary of results of potassium fertilizer trials on potatoes made in the years 1935 to 1938. *Bodenk. PflErnähr.* 20, 1940 (107-123). *Hort. Abs.* 12 (93). [G.]
- V, 1 633.491-1.83 : 581.192—Némec, A. Some effects of potash manuring on the starch content of potato tubers. *Bodenk. PflErnähr.* 20, 1940 (84-106). *Mezőg. Kutat.* 14 (71). [G.]
- VI, 2 633.491-1.83 : 581.192—Cowie, G. A. The relative responses of the potato crop to different potash fertilizers. *Emp. J. Expt. Agric.* 11, 1943 (23-32).
- IV, 4 633.491-1.84—Houghland, G. V. C.; Strong, W. O. Results of a 5-year factorial experiment with potato fertilizers. *J. Amer. Soc. Agron.* 33, 1941 (189-199).
- VII, 3 633.491-1.84 : 581.192—Giesecke, F.; Michael, G.; Heidecker, L. Field experiments on raising the protein yield by an additional late dressing of nitrogen to potatoes. *Bodenk. PflErnähr.* 32, 1943 (163-170). [G.]
- VII, 4 633.491-1.84 : 581.192—Michael, G. Increasing the protein content of potatoes by nitrogenous manuring. *Bodenk. PflErnähr.* 31, 1943 (56-63). C.A. 38 (2781). [G.]
- IV, 4 633.491-1.85—Gerlicke, S. The phosphate fertilization of potatoes. *Pflanzenbau* 16, 1940 (302-322, 342-359). C.A. 35 (2263).
- VI, 2 633.491-1.85—Krügel, C.; Dreyspring, C.; Lotthammer, R., et al. Phosphoric-acid fertilizing for potatoes. *Bodenk. PflErnähr.* 20, 1940 (317-329). C.A. 36 (4953).
- VII, 2 633.491-1.85—Brown, B. A. Soil fertility experiments with potatoes. *Conn. Veg. Grow. Assoc. Proc.* 30, 1942 (51-52). C.A. 37 (3547).
- VII, 1 633.491-1.85—Ware, L. M.; Brown, O.; Yates, H. Residual effects of phosphorus on Irish potatoes in South Alabama. *Proc. Amer. Soc. Hort. Sci.* 41, 1942 (265-269). B.C.A.B. 111, 1943 (167).
- 633.491-1.85—White-Stevens, R. H. Effect of different sources of phosphorus on the production of potatoes on Long Island. *Amer. Potato J.* 19, 1942 (81-90). *Biol. Abs.* 17 (241).
- VII, 2 633.491-1.85—Bushnell, J. The possibility of reducing the proportion of phosphate in fertilizer applied to sandy soils. *Amer. Potato J.* 20, 1943 (153-155). *Hort. Abs.* 13 (144).
- VII, 4 633.491-1.85—Brown, B. E.; Hawkins, A. A comparison of colloidal phosphate, rock phosphate and superphosphate as sources of phosphorus for potato fertilizer in Aroostook County, Maine. *Amer. Fert.* 100, No. 8, 1944 (5-7, 26).

# FERTILIZERS AND GENERAL AGRONOMY

- 633.491-1.851**—Mikhailov, V. Vivianite as fertilizer for industrial potatoes. *Spirto-Vodoch. Prom.* 17, No. 8, 1940 (14-15). C.A. 35 (8186). VI, 3
- 633.491-1.874-1.67**—Ware, L. M. The value of organic matter and irrigation in the production of potatoes in Alabama. *Amer. Potato J.* 20, 1943 (12-23). E.S.R. 89 (62). VI, 4
- 633.491-2.19**—Cowle, G. A. Factors inducing mineral-deficiency symptoms on the potato plant. *Ann. Appl. Biol.* 29, 1942 (333-340). VI, 1
- 633.491-2.19**—Sanford, G. B. Apical leaf speck of potatoes. *Sci. Agric.* 22, 1942 (772-774).
- 633.491-2.19-1.81**—Wallace, T.; Croxall, H. E.; Pickford, P. T. H. Field experiment on the manuring of potatoes. *Long Ashton Agric. Hort. Res. Sta. Ann. Rept.* 1942 (38-43). VI, 4
- 633.491-2.19-1.811.3**—Brickley, W. D. Diseased conditions in potatoes and peas associated with potash deficiency in south County Kildare. *Irish J. Dept. Agric.* 40, 1943 (149-163). VII, 1
- 633.491-2.2-1.5**—Reinmuth, E.; Engelmann, C. The influence of time of planting on cyst infestation, and on growth and yield of two varieties of potato planted in nematode-infested soil. *Landw. Jahrb.* 90, 1940 (519-534). [G.]
- 633.491-2.4 : 546.22**—Coates, W. H. The influence of a three-year rotation and fertilizer treatments on the organic carbon of soils. Experiment with potatoes. *N.H. Agric. Expt. Sta. Bull.* 324, 1940 (19-25). R.A.M. 20 (130). IV, 5
- 633.491-2.4 : 546.22**—Eddins, A. H. Effect of sulfur and limestone soil treatments on potato scab in a sandy soil. *Amer. Potato J.* 18, 1941 (312-316). Hort. Abs. 12 (35). V, 4
- 633.491-2.4-1.415.1**—Cook, H. T.; Nugent, T. J. Potato scab in relation to calcium, soil reaction and the use of acid-forming and non-acid forming fertilizers. *Pa. Truck Expt. Sta. Bull.* 108, 1942 (1785-1795).
- 633.491-2.4-1.415.1**—Schroeder, R. A.; Albrecht, W. A. Plant nutrition and the hydrogen ion : II. Potato scab. *Soil Sci.* 53, 1942 (481-488).
- 633.491-2.4-1.582**—Blodgett, F. M. Effects of agronomic practices on incidence of *Rhizoctonia*. *Amer. Potato J.* 16, 1939 (93-98). B.C.A. 59 (692). IV, 1
- 633.491-2.4-1.81**—Meyer, C. Some results of trials and observations on potato scab. *Tijdschr. PflZucht.* 46, 1940 (19-29). Biol. Abs. 15 (309).
- 633.491-2.4-2.954.9**—Hartman, R. E. Potato wart in Pennsylvania. *Proc. Pa. Acad. Sci.* 17, 1943 (71-73). C.A. 38 (2156). VII, 4
- 633.491-2.7-1.582**—Nash, K. B.; Rawlins, W. A. Wireworm studies in several potato rotation systems. *J. Econ. Ent.* 34, 1941 (287-290). IV, 5
- 633.491-2.8-1.81**—Tereshchenko, A. I. Fertilizers and potato virus diseases. *Plant Virus Diseases and Their Control, Trans. Conf. Plant Virus Diseases, Acad. Sci. U.S.S.R., Inst. Microbiol.* 1941 (321-325). C.A. 37 (4096). VII, 2
- 633.491-2.8-1.81**—Klapp, E. The effects of manuring, with and without protection against virus infection, on the value of potatoes for seed. *Ztschr. PflKrankh. PflSchutz.* 53, 1943 (25-36). R.A.M. 22 (268). VI, 4

## BIBLIOGRAPHY OF SOIL SCIENCE

- 633.492 : 546.27**—Willis, L. G. Apply borax to improve quality of sweet potatoes. *N.C. Agric. Expt. Sta. Spec. Circ.* 1, 1943, pp. 4. E.S.R. 90 (183).
- 633.492-1.5**—Anderson, W. S.; Currey, E. A.; Ferris, E. B., et al. Sweet potato plant spacing. *Miss. Agric. Expt. Sta. Bull.* 358, 1941, pp. 19.
- 633.492-1.5** Terry, H. B. Sweet potatoes. *Farm. S. Africa* 16, 1941 (268, 296).
- 633.492-1.5**—Tiedjens, V. A.; Schermerhorn, L. G. Sweet potato investigations in New Jersey. *N.J. Agric. Expt. Sta. Bull.* 697, 1942, pp. 20. E.S.R. 88 (189).
- 633.492-1.5**—Anderson, W. S.; Randolph, J. W. Sweet-potato production: time of planting and hill spacing studies. *Miss. Agric. Expt. Sta. Bull.* 378, 1943, pp. 22. *Miss. Farm Res.* 6, No. 4, 1943 (1, 3-6). E.S.R. 89 (442).
- 633.492-1.544.3**—Anderson, W. S. Sweet potato plant production in Mississippi. *Miss. Agric. Expt. Sta. Bull.* 325, 1938, pp. 10, 349, 1940, pp. 20.
- IV, 2 **633.492-1.81 : 577.16**—Swanson, P.; Stevenson, G.; Haber, E. S., et al. Effect of fertilizing treatment on vitamin A content of sweet potatoes. *Food Res.* 5, 1940 (431-438). *C.A.* 34 (7512). *Biol. Abs.* 14 (1467).
- 633.492-1.83** Kohnke. Large increases of yield of sweet potatoes obtained in Shantung through potash manuring. *Ernahr. Pfl.* 37, 1941 (77-78). [G.]
- IV, 3 **633.492-2.4-1.415.1** Person, L. H.; Martin, W. J. Soil rot of sweet potatoes in Louisiana. *Phytopath.* 30, 1940 (913-926). *C.A.* 35 (254).
- IV, 4 **633.494-1.432.2** Malivaiko, Yu. S. The effect of soil moisture on the growth of *Helianthus tuberosus*. *Zh. Inst. Bot. Ukrain. Akad. Nauk* No. 17, 1938 (197-203). *Hort. Abs.* 10 (268). [U.S.R.]
- 633.494-1.5**—Harrison, K. The Jerusalem artichoke (*Helianthus tuberosus*). *J. Dept. Agric. Victoria* 40, 1942 (463-464).
- 633.5 FIBRE PLANTS**
- VI, 3 **633.5-1.81** Opitz, K. Fertilizing and the quality of fibre plants. *Cong. Int. Tech. Chim. Indust. Agric.* 2, 1939 (560-570). *C.A.* 36 (2668).
- V, 5 **633.51 : 546.27** Piland, J. R. Effect of boron on cotton seedlings. *Proc. Assoc. S. Agric. Workers* 42, 1941 (95). *Emp. Cott. Grow. Rev.* 19 (27).
- VII, 2 **633.51 : 546.27 : 546.711** Kruglova, E. K. The efficiency of manganese and boron as fertilizers for cotton plants in central Asia. *Shorn. Nauch. Stat. Komsom. SoiusNIKhl* 1939 (228-244). *C.A.* 37 (4191).
- VII, 4 **633.51 : 581.192.6** Rabochev, I. S. The regulation of the salt regime of soils by watering during the growth period. *Pedology* No. 2-3, 1944 (72-79). [R.S.]
- 633.51-1.4**—Neely, J. W. Effect of genetical factors, seasonal differences, and soil variations on certain characteristics of Upland cotton on the Yazoo-Mississippi delta. *Miss. Agric. Expt. Sta. Tech. Bull.* 28, 1940, pp. 43. *B.C.A.B.* 111, 1943 (144).

# FERTILIZERS AND GENERAL AGRONOMY

- 633.51-1.4—Sreenivasan, A.** Surface soil thickness and cotton development. *Nature* 148, 1941 (144). IV, 6
- 633.51-1.4—Marcus, A.** Soil and cotton. *Bodenk. Pflernähr.* 29, 1943 (94-100). [G.] VI, 4
- 633.51-1.415.1—Paden, W. R.** Effect of soil pH on cotton. *Proc. Assoc. S. Agric. Workers* 42, 1941 (93). *Emp. Cott. Grow. Rev.* 19 (24). V, 5
- 633.51-1.416.13—Asana, R. D.** Nitric nitrogen in soils under cotton. *Curr. Sci.* 9, 1940 (285-286). *B.C.A.* 59 (816).
- 633.51-1.421—Christidis, B. G.** Further studies on competition in yield trials with cotton. *Emp. J. Expt. Agric.* 7, 1939 (111-120). *Biol. Abs.* 15 (110). IV, 3
- 633.51-1.427.3—Olson, L. C.** Results of plant-tissue tests and soil tests for predicting the fertilizer requirements of cotton and corn. *Proc. Assoc. S. Agric. Workers* 43, 1942 (78). *C.A.* 37 (1820).
- 633.51-1.5—Gross, E. E.** A compilation of experimental data. Cotton: land preparation, planting and cultivation. *Miss. Agric. Expt. Sta. Bull.* 323, 1938, pp. 40.
- 633.51-1.5 : 581.192—Gulati, A. N.** The effect of environment on fibre maturity of cotton. *Indian J. Agric. Sci.* 11, 1941 (566-579). *Indian Cent. Cotton Ctte. Technol. Bull. Ser. B* 30, 1940, pp. 16. V, 3
- 633.51-1.51—Bilashhev, G.** The depth of ploughing of saline soils. *Sovet. Khlopok.* 10, 1939 (27-30). *Pedology* No. 5, 1940 (106). IV, 2
- 633.51-1.51—Simpson, D. M.; Duncan, E. N.** Row widths and cotton production. *J. Amer. Soc. Agron.* 34, 1942 (544-552). V, 5
- 633.51-1.51-1.432.3—Wells, W. G.** The value of early ploughing for the cotton crop. *Queensland Agric. J.* 58, 1944 (148-150). VII, 4
- 633.51-1.531—Llosa, C. B.** Trials of close spacing of cotton during the season 1939-40. *Peru Esta. Expt. Agric. La Molina Inf.* 52, 1940, pp. 7. [Sp.] IV, 3
- 633.51-1.544.7—Leontovitch, C.** Notes on cotton cultivation in Congo Ubangi. I. Sowing cotton under cover of maize and mulching. *Bull. Agric. Congo Belge* 31, 1940 (125-133). *Biol. Abs.* 15 (2256). V, 2
- 633.51-1.581—Leontovitch, C.** Notes on cotton cultivation in Congo-Ubangi. II. Artificial fallowing with *Pennisetum*. *Bull. Agric. Congo Belge* 31, 1940 (134-137). *Biol. Abs.* 15 (2256). V, 2
- 633.51-1.582—Crowther, F.; Cochran, W. G.** Rotation experiments with cotton in the Sudan Gezira. *J. Agric. Sci.* 32, 1942 (390-405). VI, 1
- 633.51-1.582—Cowdry, W. A. R.** Trials of rotations with cotton at the Biloela Research Station. *Queensland Agric. J.* 58, 1944 (17-19). VII, 3
- 633.51-1.67—Riabov, V.** Development of cotton in relation to irrigation. *Sovet. Khlopok* No. 5, 1939 (19-24). *Pedology* No. 10, 1939 (146). IV, 2
- 633.51-1.67—Ayar, V. R.; Ahmad, N.; Thirumalachari, N. C.** The effect of differential irrigation and spacing on the field behaviour and quality of Cambodia Co 2 cotton. *Indian J. Agric. Sci.* 10, 1940 (493-521). IV, 1
- 633.51-1.67—Crowther, F.** Studies in growth analysis of the cotton plant under irrigation in the Sudan. II. Seasonal variation in development and yield. *Ann. Bot.* 5, 1941 (509-533). V, 1



# BIBLIOGRAPHY OF SOIL SCIENCE

- 633.51-1.67**—Adams, F. ; Velhmeyer, F. J. ; Brown, L. N. Cotton irrigation investigations in San Joaquin Valley, California, 1926 to 1935. *Calif. Agric. Expt. Sta. Bull.* 668, 1942, pp. 93. Biol. Abs. 17 (566).
- VI, 2 **633.51-1.67**—Harris, K. ; Hawkins, R. S. Irrigation requirements of cotton on clay loam soils in the Salt River Valley. *Ariz. Agric. Expt. Sta. Bull.* 181, 1942 (421-459). E.S.R. 87 (509).
- VII, 2 **633.51-1.81**—Durnovtsev, D. I. ; Skriabin, F. A. The use of fertilizers in cotton-lucerne rotations. *Vest. S.-Kh. Nauk. Agrotekh.* No. 1, 1940 (59-79). Herb. Abs. 13 (212).
- 633.51-1.81**—Killinger, G. B. Fertilizer requirements of the red and yellow soils of the southeast. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (255-259).
- 633.51-1.81**—Anthony, J. L. ; Pittner, J. The influence on cotton production of nitrogen, phosphorus, and potassium and their combination. *Miss. Agric. Expt. Sta. Bull.* 357, 1941, pp. 15.
- V, 2 **633.51-1.81**—Hinkle, D. A. ; Staten, G. Fertilizer experiments with Acala cotton on irrigated soils. *N. Mex. Agric. Expt. Sta. Bull.* 280, 1941, pp. 15. E.S.R. 85 (756).
- 633.51-1.811**—Sekirin, D. M. The dynamics and accumulation of nutritive elements in relation to various heights of the crop of cotton plants and the various amounts of fertilizers added. *Soil Fert. Probl., Cotton Res. Inst. Tashkent* 1939 (79---). C.A. 36 (6290).
- VI, 3 **633.51-1.811**—Tsvivinsky, V. I. The requirement of the cotton plant for nitrogen and phosphorus during various periods of its development. *Storn. Rab. Biol. Fiziol. Khlop.* 1939 (65-86). C.A. 36 (1133).
- IV, 4 **633.51-1.811**—Zhorikov, E. A. Agronomic reasons for the methods used to increase the effect of fertilizers on cotton. *Sotsial. Sel'sk. Khoz. Ucheb.* 3-4, 1939 (44-50). Pedology No. 10, 1940 (121).
- IV, 6 **633.51-1.811**—Kudrin, S. A. The utilization by cotton of the nutrient substances in fertilizers. *Khim. Sotsial. Zemled.* No. 6, 1940 (12-16). [R.]
- 633.51-1.811**—Kudrin, S. A. The absorption of nitrogen and phosphorus by cotton. *Khim. Sotsial. Zemled.* No. 3, 1941 (3-7). C.A. 37 (665).
- 633.51-1.811**—Malinkin, N. P. ; Shapovalova, M. P. The utilization of nitrogen and phosphorus by Egyptian cotton yielding abundantly. *Khim. Sotsial. Zemled.* No. 3, 1941 (8-12). C.A. 37 (665).
- V, 1 **633.51-1.811 : 581.192**—Dastur, R. H. ; Ahad, A. Studies on the periodic partial failures of Punjab-American cottons in the Punjab. III. The uptake and the distribution of minerals in the cotton plant. *Indian J. Agric. Sci.* 11, 1941 (279-300).
- 633.51-1.811 : 581.192**—Gleger, M. The effect of fertilization and cultural practices on the oil and ammonia content of cottonseed grown on Yazoo-Mississippi Delta soils. *J. Agric. Res.* 63, 1941 (49-54).
- VI, 4 **633.51-1.811 : 581.192**—Olson, L. C. ; Bledsoe, R. P. The chemical composition of the cotton plant and the uptake of nutrients at different stages of growth. *Ga. Expt. Sta. Bull.* 222, 1942, pp. 16. E.S.R. 88 (760).
- 633.51-1.811.5**—American Fertilizer. The value of sodium in cotton fertilizers. *Amer. Fert.* 94, No. 12, 1941 (9).

# FERTILIZERS AND GENERAL AGRONOMY

- 633.51-1.811.5—Matthews, E. D. Evidence of the value of the sodium ion in cotton fertilizers. *Ga. Expt. Sta. Circ.* 127, 1941, pp. 7. Biol. Abs. 15 (2074). V, 2
- 633.51-1.811.5—Matthews, E. D. Evidence of the value of the sodium ion in cotton fertilizer. *Comm. Fert.* 63, 1941 (22-26). Biol. Abs. 17 (841).
- 633.51-1.811.5—Matthews, E. D. Sodium in cotton fertilizers. *Amer. Fert.* 94, No. 9, 1941 (12). B.C.A.B. III, 1941 (199). IV, 6
- 633.51-1.811.5—Cooper, H. P.; Garman, W. H. Effect of applications of sodium on the composition and yield of cotton at different levels of potash fertilization. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (331-338). Biol. Abs. 17 (2171). VII, 1
- 633.51-1.811.91—Starov, P. V. Duty of water and irrigation technique for cotton. *Sotsial. Sel'sk. Khoz. Uzbek.* 3-4, 1939 (26-36). Pedology No. 10, 1940 (108). IV, 4
- 633.51-1.821.2—Matthews, E. D. Fertilizing cotton with gypsum. *Proc. Assoc. S. Agric. Workers* 42, 1941 (95). Emp. Cott. Grow. Rev. 19 (24). V, 5
- 633.51-1.824—Pitner, J. Value of dolomite for cotton on brown loam soils. *Miss. Farm Res.* No. 8, 1941 (8). Emp. Cott. Grow. Rev. 19 (26). V, 5
- 633.51-1.83—Protasov, P. V.; Rabochev, I. S. Potassium fertilizers for cotton. *Soil Fert. Problems Cotton Res. Inst. Tashkent* 1939 (102-113). Pedology No. 7, 1940 (106).
- 633.51-1.83—Zhorikov, E. A. Conditions for the effectiveness of potash fertilizers on cotton in Central Asia. *Khim. Selsk. Zemled.* No. 6, 1940 (17-21). [R.] IV, 6
- 633.51-1.83—Volk, N. J. Response of cotton to potash. *Proc. Assoc. S. Agric. Workers* 42, 1941 (55). Emp. Cott. Grow. Rev. 19 (24). V, 5
- 633.51-1.83—Turner, J. H., Jr. The effect of potash level on several characters in four strains of Upland cotton which differ in foliage growth. *J. Amer. Soc. Agron.* 36, 1944 (688-698). VII, 4
- 633.51-1.83-1.824 Futral, J. G.; Skinner, J. J. The influence of neutralizing acid-forming fertilizers with dolomitic limestone on the response of cotton to potash. *Ga. Agric. Expt. Sta. Bull.* 223, 1942, pp. 15. Biol. Abs. 17 (1279). VI, 3
- 633.51-1.84—Crowther, F. Form and date of nitrogenous manuring of cotton in the Sudan Gezira. *Emp. J. Expt. Agric.* 9, 1941 (125-136). IV, 4
- 633.51-1.842.4—Lazarev, A. A. The influence of large quantities of ammonium nitrate on the development of cotton. *Trans. Dokuchaev Inst.* 22, No. 1, 1940 (159-170). C.A. 36 (2073). [R.] VI, 3
- 633.51-1.842.4—Skinner, J. J. Ammonium nitrate as a fertilizer for cotton. *Comm. Fert.* 68, No. 2, 1944 (18-20). C.A. 38 (2154). VII, 4
- 633.51-1.85—Lazarev, A. A. Small-plot field experiments with different phosphatic fertilizers for cotton on serozems. *Pedology* No. 9-10, 1943 (57-61). [R.]
- 633.51-1.874—Harper, H. J. Soil conditions in relation to the response from green manure applications. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (266-270). IV, 1

# BIBLIOGRAPHY OF SOIL SCIENCE

- IV, 3    **633.51-1.874—Reynolds, E. B.** Winter legumes as soil-improving crops for cotton. *Amer. Fert.* 94, No. 4, 1941 (12-13).
- 633.51-2.19—Cooper, H. P.** Nutritional deficiency symptoms in cotton. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (322-324).
- V, 1    **633.51-2.19-1.4—Dastur, R. H.** Investigations on the partial failures of Punjab-American cottons in the Panjab. *Indian Cent. Cotton Ctee. Second Cont. Cotton Agric. Pap.* 9, 1941, pp. 31.
- 633.51-2.19-1.415.3—Dastur, R. H.** How *trak* affects Punjab-American cottons. *Indian Farm* 3, 1942 (181-183).
- VI, 1    **633.51-2.19-1.415.3—Dastur, R. H. ; Samant, K. M.** Studies in the periodic partial failures of the Punjab-American cottons in the Panjab. V. Physical and chemical properties of the soils associated with *trak* (bad opening of bolls). *Indian J. Agric. Sci.* 12, 1942 (474-492).
- VI, 2    **633.51-2.19-1.415.3—Dastur, R. H. ; Singh, S.** Studies in the periodic partial failures of the Punjab-American cottons in the Panjab. VI. The effect of sodium salts on growth of plants and development of *trak*. *Indian J. Agric. Sci.* 12, 1942 (603-626).
- VI, 2    **633.51-2.19-1.415.3—Dastur, R. H. ; Singh, M.** Studies in the periodic partial failures of the Punjab-American cottons in the Panjab. VII. Amelioration of *trak* on soils with saline subsoils (sandy loams). *Indian J. Agric. Sci.* 12, 1942 (679-696).
- IV, 4    **633.51-2.19-1.582—Ayyar, V. R. ; Sundaram, S.** A brief account of the studies on the harmful after-effects of *cholam* crop on cotton. *Indian J. Agric. Sci.* 11, 1941 (37-52).
- V, 1    **633.51-2.19-1.811.1—Dastur, R. H.** Studies on the periodic partial failures of Punjab-American cottons in the Panjab. IV. Relation between nitrogen deficiency and accumulation of tannins in leaves. *Indian J. Agric. Sci.* 11, 1941 (301-315).
- V, 5    **633.51-2.19-1.811.7—Younge, O. R.** Sulfur deficiency and its effect on cotton production on Coastal Plain soils. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (215-218).
- IV, 2    **633.51-2.4-1.582—King, C. J.** Comparison of crop rotation and fallowing as methods of control for root knot of cotton under irrigation. *Phytopath.* 30, 1940 (709). *Herb. Abs.* 10 (366).
- V, 1    **633.51-2.4-1.584—Luthra, J. C. ; Vasudeva, R. S.** Mixed cropping and the cotton root rot disease (*Macrophomina phaseoli* and *R. solani*). *Curr. Sci.* 9, 1940 (466-467). *Biol. Abs.* 15 (1836).
- V, 4    **633.51-2.4-1.584—Vasudeva, R. S.** Studies on the root-rot disease of cotton in the Panjab. XI. Effect of mixed cropping on the incidence of the disease. *Indian J. Agric. Sci.* 11, 1941 (879-891).
- IV, 1    **633.51-2.4-1.81—Adams, J. E. ; Wilson, R. C. ; Hessler, L. E., et al.** Chemistry and growth of cotton in relation to soil fertility and root-rot. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (329-332).
- IV, 1    **633.51-2.4-1.81—Jordan, H. V. ; Nelson, H. A. ; Adams, J. E.** Relation of fertilizers, crop residues, and tillage to yields of cotton and incidence of root-rot. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (325-328).
- 633.51-2.4-1.81—Tisdale, H. B. ; Dick, J. B.** The development of wilt in a wilt-resistant and in a wilt-susceptible variety of cotton as affected by N-P-K ratio in fertilizer. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (333-334).

# FERTILIZERS AND GENERAL AGRONOMY

- 633.51-2.4-1.83 Smith, A. L.** A regional study of the relationship of potash treatments to the development of cotton wilt under widely varying conditions of soil and environment. *Phytopath.* 30, 1940 (707). IV, 1
- 633.51-2.4-1.83 Smith, A. L.** A regional survey of the relationship of potash treatments to the development of cotton wilt under widely varying conditions of soil and environment. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (332). IV, 1
- 633.51-2.4-1.83--Young, V. H. ; Tharp, W. H.** Relation of fertilizer balance to potash hunger and the Fusarium wilt of cotton. *Ark. Agric. Expt. Sta. Bull.* 410, 1941, pp. 24. *Biol. Abs.* 15 (1792). E.S.R. 85 (634). V, 1
- 633.51-2.4-1.83 Tisdale, H. B. ; Dick, J. B.** Cotton wilt in Alabama as affected by potash supplements and as related to varietal behavior and other important agronomic problems. *J. Amer. Soc. Agron.* 34, 1942 (405-426).
- 633.51-2.4-1.83 Young, A. P.** Cottons resistant to wilt and root knot and the effect of potash fertilizer in east Texas. *Tex. Agric. Expt. Sta. Bull.* 627, 1943, pp. 26. C.A. 38 (4084). VII, 4
- 633.51-2.4-1.85 Neal, D. C.** 1940 regional wilt studies; phosphate-variety tests in Louisiana. *Proc. Assoc. S. Agric. Workers* 42, 1941 (198-199). C.A. 35 (7618). VI, 3
- 633.51-2.4-1.85 Smith, A. L.** Regional cotton-variety-wilt-phosphorus study. *Proc. Assoc. S. Agric. Workers* 42, 1941 (199). C.A. 35 (7618). VI, 3
- 633.51-2.4-1.86 7 King, C. J.** Effectiveness of organic manures in controlling cotton root rot on various soil types. *Phytopath.* 30, 1940 (704-705). IV, 1
- 633.51-2.4-1.86 7 King, C. J.** Effectiveness of organic manures in controlling cotton root rot on various soil types. *Proc. Assoc. S. Agric. Workers* 41, 1940 (189). C.A. 34 (8145). IV, 4
- 633.51-2.4-1.86 7 Mitchell, R. B. ; Hooton, D. R. ; Clark, F. E.** Soil bacteriological studies on the control of the *Phymatotrichum* root rot of cotton. *J. Agric. Res.* 63, 1941 (535-547). V, 2
- 633.51-2.51 Jones, T. N. ; Hamblin, I. E. ; Leonard, O. A.** Weed control and cotton tillage on Blackbelt (prairie) soils. *Miss. Agric. Expt. Sta. Tech. Bull.* 29, 1941, pp. 64. E.S.R. 87 (216).
- 633.51-2.51 Crowther, F.** Influence of weeds on cotton in the Sudan Gezira. *Emp. J. Expt. Agric.* 11, 1943 (1-14).
- 633.51-2.7-1.84 McGarr, R. L.** Relation of fertilizers to the development of the cotton aphid in 1941 and 1942. *J. Econ. Ent.* 36, 1943 (640). C.A. 38 (826). VII, 3
- 633.513-1.5 Fantl, M.** The mattress-growing tree--Kapok. *J. Geog.* 42, 1943 (96-103). *Biol. Abs.* 17 (1967).
- 633.52 : 546.27 Kalashnikova, M. M.** Boron fertilizer and the technique of its use. *Len i Konoplia* No. 10-11, 1939 (30-31). C.A. 36 (2666). VI, 3
- 633.52 : 546.47--Adam, D. B. ; Piper, C. S.** The use of zinc for flax : a progress report for growers. *J. Dept. Agric. S. Aust.* 47, 1944 (422-426). VII, 4

# BIBLIOGRAPHY OF SOIL SCIENCE

- VII, 3 633.52 : 581.192.6—Hayward, H. E.; Spurr, W. B. The tolerance of flax to saline conditions: effect of sodium chloride, calcium chloride, and sodium sulfate. *J. Amer. Soc. Agron.* 36, 1944 (287-300).
- VII, 3 633.52-1.415.1—Molfino, R. H. E. The effect of soil reaction on yield in a trial of linseed varieties. *Rev. Fac. Agron. La Plata* (1940) 25, 1943 (141-174). [Sp.e.]
- VI, 1 633.52-1.453—Becquerel, P.; Rousseau, J. Secretion by flax root of specific substance toxic for new cultures. *C.R.* 213, 1941 (1028-1030). B.C.A.A. III, 1942 (861). [F.]
- VI, 1 633.52-1.458—Connell, R. P. Does linen flax exhaust the soil? *N.Z. J. Agric.* 65, 1942 (8-9).
- 633.52-1.461.74—Berezova, E. F. The role of *Bacillus amylobacter* in the development of flax. *Mikrobiologia* 9, 1940 (813-823). C.A. 35 (7093). [R.e.]
- 633.52-1.5 Elliott, H. G. The cultivation of flax for fibre. *J. Dept. Agric. W. Aust.* 17, 1940 (315-323).
- 633.52-1.5 Robinson, B. B. Flax-fiber production. *U.S.D.A. Farm. Bull.* 1728, 1940, pp. 28.
- 633.52-1.5—Bulletin of the Imperial Institute. Linseed growing, with special reference to the tropics. *Bull. Imp. Inst.* 39, 1941 (368-370).
- 633.52-1.5—Stirling, J. Flax-growing in Scotland. *Scot. J. Agric.* 23, 1941 (139-145).
- 633.52-1.5—Hofmeyr, J. H. Linseed and its cultivation. *Farm. S. Africa* 17, 1942 (521-523).
- VI, 3 633.52-1.5 Tilt, J. Flax experimental work. Results of 1941-42 season's trials. *Tasm. J. Agric.* 13, 1942 (125-134).
- 633.52-1.5—Cook, L. J. Field trials with flax. *J. Dept. Agric. S. Aust.* 47, 1943 (75-80).
- 633.52-1.5—Faithful, W. The linen flax crop. *N.Z. J. Agric.* 66, 1943 (23-26).
- VII, 1 633.52-1.5 McCann, J. McC. Field investigations with flax. *J. Dept. Agric. Victoria* 41, 1943 (197-202). Hort. Abs. 13 (112).
- VI, 4 633.52-1.5 Milthorpe, F. L. The growth and fibre production of flax. *J. Aust. Inst. Agric. Sci.* 9, 1943 (72-76).
- V, 2 633.52-1.51—Ginzburg, G. D. Soil cultivation for flax before sowing. *Soviet Agron.* No. 11-12, 1940 (52-53). [R.]
- VI, 1 633.52-1.582—Tasmanian Journal of Agriculture. The effect of the preceding crop upon flax. *Tasm. J. Agric.* 13, 1942 (58).
- VI, 2 633.52-1.81 Peive, Ya. V.; Rodov, A. S. The effect of fertilizers added to newly cultivated soils on the growth of flax. *Gedroz. Inst. Fert. Problems of Development of Reclaimed Soils* 1939 (88-104). C.A. 36 (6290).
- IV, 5 633.52-1.81—Lantmannen, Danish experiments with linseed. *Lantmannen* 25, 1941 (351). [Sw.]
- 633.52-1.81—Pike, K. A. Fibre flax. Investigations at the Waite Institute. *J. Dept. Agric. S. Aust.* 44, 1941 (496-507).
- 633.52-1.81—Powers, W. L. Some requirements of fiber flax. *Better Crops with Plant Food* 25, No. 2, 1941 (15-16, 42-43). C.A. 35 (3378).
- VII, 3 633.52-1.81—Blackman, G. E. Investigations on the cultivation of linseed. *J. Min. Agric.* 50, 1943 (12-16). C.A. 38 (1064).

# FERTILIZERS AND GENERAL AGRONOMY

- 633.52-1.81 : 581.192—Opitz, K.; Egglihuber, E. The influence of different nitrogen salts and the nitrogen-potassium ratio on the yield and quality of flax. *Pflanzenbau* 16, 1939 (1-62). C.A. 35 (560). [G.] IV, 3
- 633.52-1.811—Opitz, K. The importance of the ratio of nitrogen to phosphoric acid in the fertilizing of flax. *Pflanzenbau* 18, 1942 (321-347). C.A. 38 (3072). VII, 4
- 633.52-1.811—Lewis, A. H. The uptake of nutrients by flax. *J. Agric. Sci.* 33, 1943 (169-173). VI, 4
- 633.52-1.811.9—Komarov, N. V. Microfertilizers for flax. *Len i Konoplia* No. 6, 1939 (46). C.A. 34 (7055). IV, 2
- 633.52-1.811.91 : 581.192—Opitz, K.; Maurmann, G. Investigations of the effect of drought on flax and spring barley. *Landw. Jahrb.* 91, 1942 (576-617). [G.]
- 633.52-1.821.1—Pelve, Ya. V. Liming flax. *VASKhNIL. Secht. Agrokhim. Izvestk. Pochv. Mat. Sovesench.* (1938) 1939 (72-91). *Pedology* No. 7, 1940 (109).
- 633.52-1.821.1 : 546.27 Yarusov, S. S. Effect of different forms of mineral fertilizers on the growth and development of flax in limed soil. *Khim. Sotsial. Zemled.* No. 1, 1940 (53-56). *Pedology* No. 10, 1940 (117).
- 633.52-1.821.1 : 581.192—Bel'sky, B. B. The effect of lime on the quality of flax and millet crops. *Shorn. Rab. Akad. Nauk B.S.S.R.* 1939 (83-107). C.A. 36 (1721). VI, 3
- 633.52-1.83—Pchelkina, G. A. The influence of potash on the process of seed formation in flax. *Len i Konoplia* No. 5, 1939 (44-46). C.A. 35 (3752). IV, 5
- 633.52-1.83 : 581.192—Ulbricht, H. Further notes on the beneficial effect of potash on flax. *Ernähr. Pfl.* 37, 1941 (65-66). [G.] IV, 6
- 633.52-1.83 : 581.192—Schmalfuss, K. Fertilization and the quality of oil-bearing and succulent plants. *ForschDienst. Sonderh.* 16, 1942 (169-170). C.A. 37 (3549). VII, 2
- 633.52-1.835—Pchelkin, V. U. The causes of the harmful effect of sylvinit on flax yields on podzol soils, and the role of lime in controlling it. *Gedroiz Inst. Fert. Potash Fert.* 1938 (205-206). *Pedology* No. 1, 1940 (123). IV, 3
- 633.52-1.841.2—Mazaeva, M. M. Efficiency of ammonium chloride for flax in relation to time of application. *Dokl. Akad. S.-Kh. Nauk* No. 6, 1941 (42-45). [R.] V, 2
- 633.52-1.85 : 581.192—Opitz, K. The effect of increasing phosphate applications on the qualities of fibre and oil flax. *Pflanzenbau* 17, 1940 (97-130). C.A. 35 (4143). IV, 6
- 633.52-1.851—Danchenko, F. L. Phosphorites for flax. *Len i Konoplia* No. 9, 1939 (34-36). C.A. 35 (5621). C.A. 36 (1133). *Pedology* No. 5, 1940 (115). IV, 2
- 633.52-1.859.1—MacIsaac, F. M.; McGregor, W. G. The effect of ammonium phosphate on the yield and quality of linseed flax in northern Saskatchewan and northeastern Alberta. *Sci. Agric.* 22, 1941 (195-200). V, 1
- 633.52-2-1.411.4—Berezova, E.; Pudova, E.; Sudakova, L., et al. Microbiological investigation of dark-coloured marsh virgin soils. *Gedroiz Inst. Fert. Problems of Development of Reclaimed Soils* 1939 (131-149). *Pedology* No. 6, 1940 (129). IV, 2

## BIBLIOGRAPHY OF SOIL SCIENCE

- VI, 3    **633.52-2.19-1.411.2—Flor, H. H.** Chlorotic dieback of flax grown on calcareous soils. *J. Amer. Soc. Agron.* 35, 1943 (259-270).  
**633.52-2.19-1.436—McKay, R.** Heat canker of flax. *Fire J. Dept. Agric.* 37, 1940 (383-386).
- VII, 3    **633.52-2.19-1.811.4—Millikan, C. R.** "Withertop" (calcium deficiency) disease in flax. *J. Dept. Agric. Victoria* 42, 1944 (79-91).
- IV, 2    **633.52-2.4—Flor, H. H.** Soil sickness of flax in North Dakota. *Phytopath.* 30, 1940 (749-760). *Biol. Abs.* 14 (1622).
- V, 3    **633.52-2.4 : 546.27—Heggeness, H. G.** Effect of borax applications on the incidence of rust in flax. *Plant Physiol.* 17, 1942 (143-144).
- IV, 2    **633.52-2.7—Ermolaev, M. F.** Flax thrips (*Thrips linarius* Uzel). *Dokl. Akad. S.-Kh. Nauk* No. 10, 1940 (33-36). [R.]
- VII, 2    **633.522-1.411.4 : 546.56—Proskura, S.** The effect of copper fertilizers on the yield and quality of hemp on reclaimed peat soils of the Ukrainian S.S.R. *Len i Konoplia* No. 9, 1940 (17-19). C.A. 37 (4848).
- VII, 2    **633.522-1.411.4 : 546.56—Shevchenko, N. N.** Slag from chalcopryite as a fertilizer for hemp. *C.R. Acad. Sci. (U.S.S.R.)* 30, 1941 (748-750). C.A. 37 (495).
- VI, 4    **633.522-1.5—Hackleman, J. C.; Domingo, W. E.** Hemp: An Illinois war crop. *Ill. Agric. Expt. Sta. Circ.* 547, 1943, pp. 8. E.S.R. 89 (60).
- 633.522-1.5—Robinson, B. B.** Hemp. *U.S.D.A. Farm. Bull.* 1935, 1943, pp. 16.
- V, 2    **633.523 : 546.27—Palit, B. K.** Effect of boron on jute. *Curr. Sci.* 9, 1940 (499-500). B.C.A.B. III, 1941 (279).
- 633.523 : 546.27—Palit, B. K.** Studies on the growth and development of jute (*Cochlosia capsularis*), with special reference to (1) the requirement of boron during its life-cycle and (2) the relation of boron to the dieback effect. *Trans. Bose Res. Inst.* 14, 1939-1941 (111-125). *Biol. Abs.* 17 (264).
- 633.523-1.5—Thomas, A. S.** The production of jute in Bengal. *Emp. J. Expt. Agric.* 10, 1942 (96-102).
- 633.524.3-1.432.2—Ikeda, M.; Inadome, T.; Hosika, N., et al.** Studies of kenaf: III. The effect of soil moisture on the growth and quality of kenaf. *Manchoukwo Agric. Expt. Sta. Res. Bull.* 33, 1940 (29-38). [J.]
- 633.524.3-1.5—Crane, J. C.** Economic plants of interest to the Americas: kenaf (*Hibiscus cannabinus* L.) as a fiber crop. *U.S.D.A. Off. Foreign Agric. Relat.* 1943, pp. 39. E.S.R. 90 (332).
- IV, 3    **633.524.3-1.811—Ikeda, M.; Inadome, T.** Investigations on the action of nitrogen, phosphoric acid and potash on kenaf (*Hibiscus cannabinus*). *Ernähr. Pfl.* 36, No. 6, 1940. Better Crops with Plant Food 24, 10 (36).
- 633.524.33—Calvert, J.** *Urena lobata* a jute substitute. *Aust. J. Coun. Sci. Indust. Res.* 15, 1942 (318-320).
- 633.524.33-1.5—Pound, F. J.** A survey of the possibilities of *Urena lobata* as a source of fibre in Trinidad. *Proc. Agric. Soc. Trin. Tob.* 40, 1940 (303-311, 313-321).
- 633.524.625.3-1.811—Bredemann, G.** Nutrient uptake and requirements of the fibre nettle. *Bodenk. PflErnähr.* 30, 1942 (95-137). [G.]

## FERTILIZERS AND GENERAL AGRONOMY

- 633.525.1-1.5**—**Scavone, G.** Opportunity and requirements for the growing of ramie. *Ital. Agric.* 76, 1939 (327-336). Biol. Abs. 14 (1196). [1.]
- 633.525.1-1.5**—**Robinson, B. B.** Ramie fibre production. *U.S.D.A. Circ.* 585, 1940, pp. 14.
- 633.525.1-1.5**—**Poggendorff, W. H.** Ramie (*Boehmeria nivea*) can be grown on far north coast. *Agric. Gaz. N.S.W.* 52, 1941 (253-255).
- 633.525.1-1.67**—**Chkhikvishvili, V. I.** Ramie irrigation. *Sovet. Subtrop.* No. 7, 1940 (50-52). [R.] V, 1
- 633.525.1-1.81**—**Chkhikvishvili, V. I.** The effectiveness of fertilizers in the culture of ramie under irrigation (dry subtropics of eastern Georgia). *Khim. Sotsial. Zemled.* No. 10, 1940 (19-22). [R.] IV, 6
- 633.526.22**—**Lester, A. H.** Henequen from Cuba. *Agric. in Americas* 4, 1944 (69-72).
- 633.526.42-1.5**—**Greenway, P. J.** Bowstring hemp or *Sansevieria* fibre. *E. Afric. Agric. J.* 7, 1941 (96-97). Hort. Abs. 12 (107).
- 633.526.6**—**Xavier, L. P.** Carôá: history, cultivation and geographical distribution. *Min. Agric. Brasil* 1942, pp. 270. [1t.]
- 633.527.5-1.81**—**Sutoh, H.** Studies on the value of chemicals as manure for *Juncus effusus* L. var. *deciptens* Buch. III. The value of some compound fertilizers. *J. Agric. Chem. Soc. Japan* 17, 1941 (396-403). [1c.]
- 633.584.9-1.5**—**Taylor, J. E.** The raphia palm (*Raphia sudanica* A. Chev.). Its propagation and uses in Northern Nigeria. *Farm and Forest* 2, 1941 (21-24). Hort. Abs. 13 (71).

## 633.6 SUGAR AND STARCH PLANTS

- 633.61:551.58**—**Knoche, W. ; Borsacov, V.** A comparative study of climates suitable for sugar cane according to a new climatic classification. *Tucumán Esta. Expt. Agric. Bol.* 30, 1940, pp. 19. Biol. Abs. 15 (183). [Sp.] IV, 3
- 633.61:581.192.6**—**Ladell, W. R. S.** Soil salinity and sugar cane. *Jamaican Assoc. Sug. Tech. Quart.* 5, No. 4, 1942 (2). Trop. Agric. Trin. 20 (64). VI, 3
- 633.61:581.192.6**—**Poey, F.** Soluble soil salts harmful to sugar cane. *Proc. Ann. Conf. Cuban Sug. Tech. Assoc.* 16, 1942 (55-64). C.A. 37 (6390). VII, 2
- 633.61-1.3**—**Pound, F. J.** The mechanisation of agricultural practices on sugar estates. *Proc. Agric. Soc. Trin. Tob.* 44, 1944 (111, 113, 115, 117-119).
- 633.61-1.4:581.192**—**Borden, R. J. ; Smith, L. R.** Some effects of cane quality produced by different soils. *Hawaii. Plant. Rec.* 44, 1940 (187-200). IV, 1
- 633.61-1.415.36**—**Basu, J. K. ; Tagare, V. D.** Reclamation of alkali soils of the Bombay-Deccan with special reference to the fertility status and the quality of *gud*. *Poona Agric. Coll. Mag.* 34, No. 4, 1943, pp. 4. C.A. 37 (6072). VII, 2
- 633.61-1.421**—**Bigot, A.** Factorial plot experiments in the Java sugar industry. *Arch. Suikerindust.* 2, 1941 (361-364). P.B.A. 12 (221).



# BIBLIOGRAPHY OF SOIL SCIENCE

- 633.61-1.421—Hoogland, J. J.; Bär, A. L. S. Detailed variation analysis of experimental field results. *Arch. Suikerindust.* 2, 1941 (402-407). B.C.A.B. III, 1942 (164).
- VI, 3 633.61-1.422—Foster, W. H. Fertility investigations. *Proc. Ann. Cong. S. Afric. Sug. Tech. Assoc.* 15, 1941 (121-127). C.A. 36 (1717).
- 633.61-1.427.3—Beauchamp, C. E. The composition of the alcoholic extract of sugar cane leaves as a means of determining the fertility of the soil for this crop. *Proc. Ann. Conf. Cuban Sug. Tech. Assoc.* 13, 1939 (273-284). F.A.S. 35, 12 (42). I.S.J. 43 (6).
- V, 1 633.61-1.427.3 Beauchamp, C. E. Mineral composition of entire sugar cane leaves and their alcohol extract as indicators of soil fertility. *Proc. Ann. Conf. Cuban Sug. Tech. Assoc.* 14, 1940 (57-67). *Sugar* 36, 10 (78).
- 633.61-1.427.3—Craig, N. Foliar diagnosis. *Rev. Agric. Maurice* 1941 (360). *Sugar* 37, 8 (36).
- VI, 3 633.61-1.427.3 Clements, H. F.; Moriguchi, S. Nitrogen and sugar cane. The nitrogen index and certain quantitative field aspects. *Hawaii. Plant. Rec.* 46, 1942 (163-190).
- VI, 1 633.61-1.427.3—Evans, H. An investigation of physiological methods of determining nutrient deficiencies in sugar cane. *Ann. Bot.* 6, 1942 (413-436).
- VII, 1 633.61-1.427.3 Clements, H. F.; Kubota, T. The primary index, its meaning and application to crop management with special reference to sugar cane. *Hawaii. Plant. Rec.* 47, 1943 (257-297).
- VI, 3 633.61-1.432.2 : 581.192—Bourbakis, C. J. Soil moisture and richness of sugar cane. *Proc. Ann. Conf. Cuban Sug. Tech. Assoc.* 14, 1940 (137-141). C.A. 35 (5233).
- IV, 1 633.61-1.547.1—Rege, R. D.; Wagie, P. V. Problems of sugarcane physiology in the Deccan-Canal tract. I. Germination. II. "Earthing-up" of cane. *Indian J. Agric. Sci.* 9, 1939 (423-448, 449-456). I.S.J. 42 (427).
- V, 4 633.61-1.547.2 : 551.58—Borden, R. J. Cane growth studies. Factors which influence yields and composition of sugar cane. *Hawaii. Plant. Rec.* 45, 1941 (241-263).
- 633.61-1.547.2 : 551.58—Mathur, R. N. Studies in the growth of sugarcane and development of sucrose at Shahjahanpur in relation to climatic conditions. *Proc. Tenth Ann. Conv. Sug. Tech. Assoc. India* 1941 (1-34).
- V, 6 633.61-1.557—De Sornay, A. Estimation of cane yields by means of random rows and stools. *Rev. Agric. Maurice* 21, 1942 (107-113). [E.]
- V, 4 633.61-1.584-1.841.1—Calma, V. C. Intercropping sugar cane with legumes and fertilizing with ammonium sulphate. *S. Afric. Sug. J.* 24, 1940 (339). *Herb. Abs.* 12 (24).
- IV, 3 633.61-1.584-1.841.1—Calma, V. C.; Tlamsing, J. P. The comparative effects of soybean and peanut planted with sugar cane and ammonium sulfate fertilizer upon the yield of sugar cane. *Philipp. Agriest.* 29, 1940 (20-33).
- V, 2 633.61-1.67—Rege, R. D. Sugar-cane research in the Bombay-Deccan. *Emp. J. Expt. Agric.* 10, 1942 (43-56).
- IV, 6 633.61-1.67-1.81—Hind, R. R. Irrigated versus fertilized sugar cane. *Sug. News* 22, 1941 (75-77). C.A. 35 (4144).

# FERTILIZERS AND GENERAL AGRONOMY

- 633.61-1.81—Benares Hindu University.** Progress report of the physiology of cane and wheat research. *Imp. Council Agric. Res.* 1940, pp. 117. IV, 6
- 633.61-1.81—Turner, P. E.** Field experiments on sugar cane in Trinidad. *Trin. Sug.-Cane Investig. Cttee. Ann. Rept.* 1940, pp. 260.
- 633.61-1.81—Rege, R. D.** Fertilizer experiments on sugar-cane in India 1932-39. *Imp. Council Agric. Res. Misc. Bull.* 41, 1941 pp. 63.
- 633.61-1.81—Turner, P. E.** Field experiments on sugar cane in Trinidad. *Trin. Sug.-Cane Investig. Cttee. Ann. Rept.* (1941) 1941 (1-185).
- 633.61-1.81—Cane Growers' Quarterly Bulletin.** Farm fertility trials and the war-time rationing of fertilizer supplies. *Cane Grow. Quart. Bull.* 9, 1942 (69-86).
- 633.61-1.81—Turner, P. E.** Field experiments on sugar cane in Trinidad. *Trin. Sug.-Cane Investig. Cttee. Ann. Rept.* (1942) 1942 (1-223).
- 633.61-1.81—Williams, C. H. B.; Cameron, C.** Field experiments with sugar cane, XI. *Brit. Guiana Dept. Agric. Sug. Bull.* 11, 1942 (1-37). VI, 2
- 633.61-1.81—Dodds, H. H.** A preliminary survey of recent fertilizer experiments for sugarcane. *Proc. Ann. Cong. S. Afric. Sug. Tech. Assoc.* 17, 1943 (57-65).
- 633.61-1.81 : 581.192—McKaig, N., Jr.; Hurst, L. A.** Chemical composition of sugarcane juice as affected by fertilizers. *U.S.D.A. Tech. Bull.* 754, 1941, pp. 64.
- 633.61-1.81 : 581.192—Singh, B. N.** The growth of the sugarcane plant in India. Part I. Age-fertiliser effects on the physiology and chemistry of sugarcane. *Proc. Indian Acad. Sci.* 14B, 1941 (201-234).
- 633.61-1.81 : 581.192—Singh, B. N.** The growth of the sugarcane plant in India. II. Physiological effects of deficiency or excess of added fertilisers upon growth characters, carbohydrate metabolism, yield, and juice quality of sugarcane. *Proc. Indian Acad. Sci.* 14B, 1941 (359-383).
- 633.61-1.81 : 581.192—Rege, R. D.; Sannabhadri, S. K.** Manuring cane for high quality of juice. *Indian Sug.* 5, 1942 (238-240). *Sugar* 38, 1 (44). C.A. 36 (7213). VI, 2
- 633.61-1.81-1.547.2—Kerr, H. W.** Does fertilizer affect the arrowing of cane? *Cane Grow. Quart. Bull.* 8, 1940 (76). F.A.S. 36, 2 (39). IV, 3
- 633.61-1.811—Beauchamp, C. E.; Alvarino, J. E.** Mineral composition of sugar cane varieties and possible relationship with their mineral nutrition. *Proc. Ann. Conf. Cuban Sug. Tech. Assoc.* 14, 1940 (45-55). *Sugar* 36, 10 (77). V, 1
- 633.61-1.811—Martin, J. P.** Varietal differences of sugar cane in growth, yields, and tolerance to nutrient deficiencies. *Hawaii. Plant. Rec.* 45, 1941 (79-91). *Biol. Abs.* 17 (232). VI, 2
- 633.61-1.811—Beauchamp, C. E.** Nutrition of the sugar cane and its importance in the production of new varieties. *Proc. Ann. Conf. Cuban Sug. Tech. Assoc.* 16, 1942 (71-74). C.A. 37 (6393).
- 633.61-1.811—Borden, R. J.** The early development and rate of nutrient uptake by sugar cane. *Hawaii. Plant. Rec.* 48, 1944 (43-53). VII, 4

# BIBLIOGRAPHY OF SOIL SCIENCE

- 633.61-1.811.1—Cornelison, A. H. ; Cooper, H. F. Further studies in nitrogen nutrition. Amounts-of-nitrogen test. *Hawaii. Plant. Rec.* 44, 1940 (273-308).
- VI, 4 633.61-1.811.2—Rege, R. D. ; Sannabhatti, S. K. Problems of sugarcane physiology in the Deccan canal tract. IV. Mineral nutrition: (A) phosphates. *Indian J. Agric. Sci.* 13, 1943 (87-111).
- IV, 6 633.61-1.811.3 Borden, R. J. Potash requirements for sugar cane. *Hawaii. Plant. Rec.* 45, 1941 (131-146).
- IV, 1 633.61-1.811.9—Ballard, S. S. A spectrographic study of mineral elements in sugar cane. *Hawaii. Plant. Rec.* 44, 1940 (183-186).
- VII, 1 633.61-1.811.91—Clements, H. F. ; Kubota, T. Internal moisture relations of sugar cane—the selection of a moisture index. *Hawaii. Plant. Rec.* 46, 1942 (17-36).
- VII, 4 633.61-1.811.91—Rege, R. D. ; Vagholkar, B. P. ; Wagle, P. V., et al. Problems of sugarcane physiology in the Deccan Canal tract. *Indian J. Agric. Sci.* 13, 1943 (413-433).
- VII, 3 633.61-1.83—Saito, T. The effect of potash fertilizer on sugar cane and the determination of the optimum dose of potash fertilizer. *Formosa Govt. Sug. Expt. Sta. Rept.* No. 8, 1940 (56-58). C.A. 37 (2870).
- 633.61-1.83—Willcox, O. W. The fertilization of sugar cane. II. The agrobiologic evaluation of some potash tests. *Sugar* 36, No. 6, 1941 (28-29). C.A. 35 (5236).
- 633.61-1.84—Archief voor de Suikerindustrie. Partial substitution of nitrate of soda for sulphate of ammonia. *Arch. Suikerindust.* 1, 1941 (592-593). [Du.]
- V, 4 633.61-1.84—Clason, E. W. Nitrogen manuring in cane culture in Hawaii. *Arch. Suikerindust.* 2, 1941 (333-334). B.C.A.B. III, 1942 (99).
- V, 3 633.61-1.84 Guiang, A. C. Nitrogen source tests for sugarcane. *Sug. News* 22, 1941 (217-220). Biol. Abs. 16 (213).
- VI, 3 633.61-1.84 Nolla, J. A. B. Sugar-cane research conducted at the Agricultural Experiment Station of the University of Puerto Rico. *P.R. Sug. Man.* 1940-41 (6-9). C.A. 36 (3609).
- VI, 3 633.61-1.84 Davidson, L. G. ; Hurst, L. A. Soil fertility investigations on sugar cane in Louisiana. *Sug. Bull.* 21, No. 3, 1942 (20-22). *Sugar* 38, 3 (36).
- 633.61-1.84 : 581.192 International Sugar Journal. Studies in nitrogen nutrition. *Int. Sug. J.* 43, 1941 (136-137).
- 633.61-1.84 : 581.192 Borden, R. J. A search for guidance in the nitrogen fertilization of the sugar cane crop. Part I.—The plant crop. *Hawaii. Plant. Rec.* 46, 1942 (191-238).
- VII, 4 633.61-1.84-1.415.1 Borden, R. J. Cumulative effects from heavy applications of nitrogen fertilizers. *Hawaii. Plant. Rec.* 48, 1944 (13-19).
- IV, 1 633.61-1.84-1.816.2—Johnston, B. Manurial trials with sugar cane. *Barbados Agric. J.* 9, 1940 (1-12).
- VI, 2 633.61-1.84-1.816.2—Borden, R. J. The first application of nitrogen. *Hawaii. Plant. Rec.* 46, 1942 (103-104).
- 633.61-1.841/1—Clason, E. W. Optimum sulphate-of-ammonia trials with seven rates of application. *Arch. Suikerindust.* 1, 1940 (445-448). [Du.]

# FERTILIZERS AND GENERAL AGRONOMY

- 633.61-1.841.1—Willcox, O. W.** The fertilization of sugar cane. Part III. The agrobiologic evaluation of some nitrogen tests. *Sugar* 36, No. 11, 1941 (26-27, 31).
- 633.61-1.874—Arceneaux, G.** Does it pay to plough under soybean? *Sug. Bull.* 21, 1943 (114-116). *Biol. Abs.* 17 (2169).
- 633.61-2.183 : 581.192—Borden, R. J.** Juice quality affected by lodging. *Hawaii. Plant. Rec.* 46, 1942 (39-42).
- 633.61-2.183-1.841.1—Vertregt, M.** Aberrant yields in the Optimal Sulphate-of-Ammonia series of trials. *Arch. Suikerindust.* 1, 1940 (410-414). [Du.]
- 633.61-2.4-1.83—Okada, M.** Effect of potassium on sclerotic disease of the sugar cane. *Govt. Sug. Expt. Sta. Rept. Formosa* No. 7, 1940 (42-53). *C.A.* 35 (5239).
- 633.61-2.4-1.83—Wiehe, P. O.** The influence of season and of potassic fertilizers upon the development of "eye spot" of sugar cane. *Rev. Agric. Maurice* 19, 1940 (57-61). [F.]
- 633.61-2.7-1.811.1—Mathur, R. N.** Certain observations on the nitrogen nutrition of the sugarcane plant in relation to susceptibility to attack of white-fly. *Proc. Tenth. Ann. Conv. Sug. Tech. Assoc. India* 1941 (45-53).
- 633.63 : 546.331.31—Delemenchuk, M. I. ; Morozov, A. S.** Sodium chloride as a fertilizer for sugar beets. *Tekhn. Kul.* No. 10, 1939 (50-53). *C.A.* 36 (4263).
- 633.63 : 546.331.31—Vlasiuk, P. A.** Utilization of common salt as fertilizer for sugar beets. *Sci. Stud. Sug. Res. Inst. Moscow* (1937), 1939 (99-108). *C.A.* 36 (6292).
- 633.63 : 546.711—Fedosova, A. F.** The effect of the micro-element manganese on the increases in weight of the roots and sugar content of sugar beets. *Sci. Stud. Sug. Res. Inst. Moscow* (1937), 1939 (173-175). *C.A.* 36 (6196).
- 633.63 : 577.15.04—Amlong, H. U. ; Naundorf, G.** Effects of naphthylacetic acid on development and yield of sugar beet. *ForschDienst.* 11, 1941 (549-553). [G.]
- 633.63-1.4 : 581.192—Vašátko, J. ; Trnka, R. ; Sajfertová, D., et al.** The influence of soils on the quality of sugar beets and juices. *Listy Cukr.* 58, 1940 (87-93). *C.A.* 34 (7131).
- 633.63-1.4 : 581.192—Kent, G. C. ; Nagel, C. M. ; Melhus, I. E.** Influence of some soil and cultural practices on the sucrose content of sugar beets. *Iowa St. Coll. J. Sci.* 17, 1943 (163-173).
- 633.63-1.411.4—Harmer, P. M.** Muck soil management for sugar beet production. *Mich. Agric. Expt. Sta. Circ.* 187, 1943, pp. 20. *E.S.R.* 89 (211).
- 633.63-1.427.3—Ulrich, A.** Nitrate test, a guide to nitrate fertilization of sugar beets. *Sugar Beet* 3, No. 3, 1942 (6-9). *C.A.* 36 (4951).
- 633.63-1.427.3—Brown, R. J.** Sampling sugar beet petioles for measurement of soil fertility. *Soil Sci.* 56, 1943 (213-222).
- 633.63-1.432.2—Domøen, L. D.** Some soil-moisture conditions in relation to growth and nutrition of the sugar-beet plant. *Proc. Amer. Soc. Sug. Beet Tech.* 3, 1942 (54-62). *Sugar* 39, 7 (47).
- 633.63-1.434—Baver, L. D. ; Farnsworth, R. B.** Soil structure effects in the growth of sugar beets. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (45-48).

# BIBLIOGRAPHY OF SOIL SCIENCE

- VI, 2    **633.63-1.445.4**—**Frantesson, V. A.** Some characteristics of chernozem soils as media for cultivating sugar beet. *Pedology* No. 2, 1942 (36-52). [R.e.]
- VI, 2    **633.63-1.445.53**—**Antipov-Karataev, I. N.** The cultivation of sugar beet on soils of solonets complexes. *Pedology* No. 2, 1942 (26-35). [R.e.]
- IV, 2    **633.63-1.51**—**Decoux, L. ; Vanderwaeren, J. ; Simon, M.** The question of deep ploughing. *Inst. Belge Amélior. Better. Pub.* 8, 1940 (16-20). F.a.S. 35, 10 (34).
- V, 2    **633.63-1.51**—**D'iakov, N.** Deep ploughing for sugar beet. *Dokl. Akad. S.-Kh. Nauk* No. 11, 1941 (11-14). [R.]
- VI, 4    **633.63-1.531**—**Price, C.** Depth of planting with sheared and whole sugar beet seed. *Spreckels Sug. Beet Bull.* 7, No. 4, 1943 (17). Sugar 38, 8 (36).
- 633.63-1.531**—**Meadows, H. J.** Cross-blocking of sugar beet. *J. Min. Agric.* 50, 1944 (553-557).
- 633.63-1.531**—**Sugar.** "Pelleting" segmented beet seed. *Sugar* 39, No. 2, 1944 (21).
- VI, 4    **633.63-1.531-1.81**—**Tolman, B.** Sugar-beet production in Southern Utah, with special reference to factors affecting yield and reproductive development. *U.S.D.A. Tech. Bull.* 845, 1943, pp. 35.
- IV, 5    **633.63-1.547.1-1.816.3**—**Alekseeva, E. N.** Drilled manuring and germination of beet seeds. *Khim. Sotsial. Zemled.* No. 1, 1940 (57-59). Herb. Abs. 11 (88).
- VI, 2    **633.63-1.58 : 581.192**—**Carlson, W. E.** The distribution of mineral elements in the sugar beet as influenced by different preceding crops. *Soil Sci.* 54, 1942 (425-437).
- 633.63-1.582**—**Lill, J. G. ; Rather, H. C.** Sugar beets after alfalfa. *Mich. Agric. Expt. Sta. Quart. Bull.* 26, 1943 (129-133).
- VII, 4    **633.63-1.584**—**Decoux, L.** Beets as a catch crop. *Inst. Belge Amélior. Better. Pub.* 11, 1943 (293-298). ForschDienst. 17 (14).
- V, 5    **633.63-1.67**—**Nuckols, S. B.** Moisture requirements of sugar beets. *Neb. St. Irrig. Assoc. 48th Ann. Conv.* 1940, pp. 16. Sugar 37, 6 (43).
- VI, 2    **633.63-1.67**—**Price, C. ; Huberty, M. R.** Irrigation of sugar beets grown for seed. *U.S.D.A. Circ.* 658, 1942, pp. 7. Biol. Abs. 17 (235).
- VII, 4    **633.63-1.67**—**Nuckols, S. B.** Experiments in watering sugar beets in western Nebraska. *Amer. Soc. Sug. Beet. Tech.* 1944. Sugar 39, 7 (47).
- VII, 4    **633.63-1.67-1.81**—**Skuderna, A. W.** Résumé of commercial fertilizer studies with sugar beets. *Proc. Amer. Soc. Sug. Beet Tech.* 3, 1942 (138-148). C.A. 38 (2782).
- 633.63-1.81**—**Ukradyga, F. Ya.** Nutritive mixtures for sugar beets. *Sci. Stud. Sug. Res. Inst. Moscow* (1937), 1939 (179-182). C.A. 36 (6293).
- VI, 2    **633.63-1.81**—**Berkner, F.** The effect of increased nitrogen and potassium addition on root and leaf yield and on the beet-leaf ratio. *Zuckerrübenb.* 22, 1940 (49-56). C.A. 36 (5597).
- VI, 3    **633.63-1.81**—**Decoux, L. ; Vanderwaeren, J. ; Simon, M.** Mineral bases and sugar beet. *Inst. Belge Amélior. Better. Pub.* 8, 1940 (271-275). C.A. 35 (5622).

# FERTILIZERS AND GENERAL AGRONOMY

- 633.63-1.81—Farrar, I. E.** Artificial manures. *Sug. Beet Bull.* 5, 1941 (52-55). F.a.S. 36, 3 (33).
- 633.63-1.81 : 581.192—Antykov, A. Ya.** Effect of manuring on the quality of sugar beets, potatoes and spring wheat. *Khim. Sotsial. Zemled.* 8, No. 9, 1939 (71-72). C.A. 35 (6378). VI, 3
- 633.63-1.81 : 581.192—Roboz, E.** A rapid method suitable for routine series determinations of harmful nitrogen and the influence of the variety, the soil and the fertilizer on the content of harmful nitrogen in the beets. *VI. Cong. Int. Tech. Chim. Indust. Agric.* 2, 1939 (82-93). C.A. 35 (6141). Biol. Abs. 17 (844). VI, 3
- 633.63-1.81 : 581.192—Cerný, M.** The movement of the main nutritive elements in sugar beets. *Listy Cukr.* 58, 1940 (199-210). C.A. 34 (7337). [Cz. g.]
- 633.63-1.81 : 581.192 Roboz, E.** Harmful nitrogen (in sugar beets). *Chl. Zuckerindust.* 48, 1940 (205-208). C.A. 36 (5597). VI, 2
- 633.63-1.81 : 581.192—Sajfertová, D. ; Dykyj, J.** The influence of nutrition upon the chemical composition of sugar beets. *Listy Cukr.* 58, 1940 (225-246). C.A. 34 (7338). IV, 2
- 633.63-1.81 : 581.192—Vavrinecz, G.** The influence of fertilizer on the quality and yield of sugar beets. *Chl. Zuckerindust.* 48, 1940 (268-270, 304). C.A. 36 (5305).
- 633.63-1.81 : 581.192 Roboz, E.** Harmful constituents of beets factors which influence harmful nitrogen. *Proc. Amer. Soc. Sug. Beet Tech.* 3, 1942 (515-528). C.A. 38 (3408). VII, 4
- 633.63-1.81 : 581.192 Hirst, C. T. ; Greaves, J. E.** Noxious nitrogen in leaves, crowns, and beets of sugar beet plants grown with various fertilizers. *Soil Sci.* 57, 1944 (417-424). VII, 4
- 633.63-1.81 : 581.192 Hirst, C. T. ; Greaves, J. E.** The nitrogen and mineral contents of sugar beet sections. *Soil Sci.* 58, 1944 (25-34).
- 633.63-1.811—Rozhdestvensky, I. G.** The effect of regulating the relative contents of the cation and anion fractions of fertilizers during various periods of the vegetation of sugar beets. *Sci. Stud. Sug. Res. Inst. Moscow* (1937), 1939 (122-124). C.A. 36 (6292). VI, 2
- 633.63-1.811—Nicolaisen, W. ; Titzck, W.** Comparative investigations on nutrient absorption by fodder beets and sugar beets. *Zuckerrübenbau* 24, 1942 (1-16). C.A. 37 (3870).
- 633.63-1.811.1—Colin, H.** Nitrate or ammonia nitrogen for the sugar beet? *Bull. Assoc. Chim. Sucri.* 58, 1941 (3-11). C.A. 35 (6722).
- 633.63-1.811.1 : 546.22—Tolman, B. ; Stoker, G. L.** Sulfur and nitrogen deficiency relationships in sugar beets grown for seed in Oregon. *J. Amer. Soc. Agron.* 33, 1941 (1072-1079). V, 2
- 633.63-1.811.1 : 581.192 Ulrich, A.** Relationship of nitrogen to the formation of sugar in sugar beets. *Proc. Amer. Soc. Sug. Beet Tech.* 3, 1942 (66-80). C.A. 38 (2700). VII, 4
- 633.63-1.811.5—Bruinsma, J. R.** Field tests with potassium, sodium and barium on sugar beets. *Meded. Inst. Suikerbiet.* 10, 1940 (141-160). Sugar 36, 8 (40). IV, 6
- 633.63-1.811.5—Decoux, L. ; Vanderwaeren, J. ; Simon, M.** Effect of soda and potash on the development of the sugar beet. *Inst. Belge Amélior. Better. Pub.* 8, 1940 (277-294). C.A. 35 (5622). VI, 3

## BIBLIOGRAPHY OF SOIL SCIENCE

- IV, 6, V, 3 **633.63-1.811.5**—Decoux, L.; Vanderwaeren, J.; Roland, G., et al. Sodium and sugar beets. *Inst. Belge Amélior. Better. Pub.* 9, 1941 (4-14). *Sugar* 37, 1 (44). C.A. 35 (4898).
- VI, 4 **633.63-1.811.5**—Decoux, L.; Vanderwaeren, J.; Simon, M. Action of increasing additions of salt and soda on the development of the sugar beet. *Inst. Belge Amélior. Better. Pub.* 9, 1941 (271-279). *Sugar* 38, 6 (36).
- V, 1 **633.63-1.811.5**—Itallie, T. B. van. The importance of sodium for beets under conditions of varying sodium and potassium supply. *Landbouwk. Tijdschr.* 53, 1941 (53-70). *Biol. Abs.* 15 (1784).
- V, 2 **633.63-1.811.5**—Lehr, J. J. The importance of sodium for plant nutrition: II. Effect on beets of the secondary ions in nitrate fertilizers. *Soil Sci.* 52, 1941 (373-379).
- 633.63-1.811.6**—Bougy, E. Calcium and magnesium in the beet. *Bull. Assoc. Chim. Sucr.* 58, 1941 (153-160). *Int. Sug. J.* 44 (188).
- IV, 6 **633.63-1.811.9**—Lehr, J. J. Action of minor and trace elements. *Landbouwk. Tijdschr.* 52, 1940 (823-836). *Biol. Abs.* 15 (1419).
- 633.63-1.811.91**—Timoshenko, S. V. Irrigation regime for sugar beet with sprinkling irrigation. *Dokl. Akad. S.-Kh. Nauk* No. 16, 1940 (22-28). [R.]
- VI, 4 **633.63-1.816.2**—Kolosh, I. L. Reaction of sugar beets to mineral fertilizers applied during the period of growth. *Trudy Inst. Sotsial. Zemled.* 4, 1939 (213-292). [U. r.]
- IV, 6 **633.63-1.816.2**—Lut, F. A. The technique of applying organic and mineral fertilizers to sugar beet. *Khim. Sotsial. Zemled.* No. 5, 1940 (30-35). [R.]
- IV, 2 **633.63-1.816.23**—Vlasiuk, P. A. Effect of different systems of top-dressing on the yield of sugar beet. *Dokl. Akad. S.-Kh. Nauk* No. 10, 1940 (3-6). [R.]
- 633.63-1.816.3**—Pendleton, R. E. Principles of fertilizer practice with sugar beets. *Sug. Beet Bull.* 4, No. 10, 1940 (41, 43). F.A.S. 35, 12 (43).
- VII, 2 **633.63-1.816.3**—Decoux, L. Effect of depth of ploughing-under fertilizers on the yields of sugar beets. *Inst. Belge Amélior. Better. Pub.* 9, 1941 (307-310). C.A. 37 (4190).
- VI, 3 **633.63-1.83**—Krutikov, N. E.; Azhigoev, P. K. The effectiveness of potassium fertilizers for sugar beets. *Narod. Khoz. Kazakh.* No. 5, 1939 (35-40). C.A. 36 (1133).
- IV, 2 **633.63-1.83**—Remy, T. Potash manuring of sugar beet. *Cbl. Zuckerindust.* 48, 1940 (585-589). F.A.S. 35, 12 (43).
- VII, 4 **633.63-1.83**—Asdonk, T.; Jacob, A. Summary of results of trials with potash manuring made from 1935 to 1938 under the auspices of the Agricultural Technical Potash Bureau and the German Potash Syndicate. II. Sugar beet, mangolds and swedes. *Bodenk. Pflernähr.* 31, 1943 (197-215). [G.]
- 633.63-1.83:581.192**—Brykczynski, J. The influence of potassium on the accumulation of sugar in the sugar beet. *Gaz. Cukrown.* No. 3, 1939 (85-90). C.A. 36 (5303).
- VI, 3 **633.63-1.83:581.192**—Ganchev, N. Influence of potassium sulphate on the mineral constituents of sugar beets. *Ann. Univ. Sofia Fac. Agron. Sylvicult. Livre* 1, 18, 1940 (211-277). C.A. 35 (7095).

# FERTILIZERS AND GENERAL AGRONOMY

- 633.63-1.83 : 581.192 López-Rubio, F. B.** What potassic fertilizer is most suitable for cultivated fields? *Ion* 3, 1943 (683-685). C.A. 38 (3771). VII, 4
- 633.63-1.84 Schneider, F.** Action of nitrogenous fertilizer on sugar beets. *Ch. Zuckerindust.* 48, 1940 (885-886). C.A. 35 (2659). IV, 4
- 633.63-1.84 Ulrich, A.** The influence of nitrogen on beet-sugar production. *Sug. Beet Bull.* 4, No. 2, 1940 (7, 9-10). F.A.S. 35, 10 (35). IV, 2
- 633.63-1.84 : 581.192 Neugebauer, E. A.** The action of nitrogenous fertilizer on sugar beets. *Ch. Zuckerindust.* 49, 1941 (101-102). C.A. 37 (3871). VII, 2
- 633.63-1.84 : 581.192 Siller, W.** The effect of large applications of nitrogen on the yield and feeding value of sugar-beet leaves and on the sugar content of the beets. *Zuckerrübenbau* 23, 1941 (80-86). *ForschDienst.* 13 (89). [G.] VI, 1
- 633.63-1.84 : 581.192 Gardner, R.; Robertson, D. W.** The nitrogen requirements of sugar beets. *Colo. Agric. Expt. Sta. Tech. Bull.* 28, 1942, pp. 32. *Sugar* 37, 7 (45). V, 5
- 633.63-1.84 : 581.192 Rheinwald, H.** The influence of nitrogenous manuring of sugar beet on the quality of silage made from the beet leaves. *ForschDienst.* 13, 1942 (30-33). [G.] V, 5
- 633.63-1.84 : 581.192 Zander, H.** The nitrate and ammonia nutrition of beets. *Bodenk. Pflernähr.* 33, 1943 (46-94). [G.]
- 633.63-1.841.5 Janke, F.** Calcium cyanamide in the cultivation of the sugar beet. *Zuckerrübenbau* 22, No. 4, 1940 (41-46). C.A. 36 (2980).
- 633.63-1.841.5-1.816.2 Lueg.** Experience with ploughing-in of artificials to sugar beet. *Zuckerrübenbau* 23, No. 2, 1941 (18-24). *ForschDienst.* 11 (98). [G.] V, 1
- 633.63-1.876.9 Novitsky, M. D.** Utilizing industrial wastes for fertilization of beets. *Socklovich. Polerodstvo* No. 10-11, 1939 (64-65). C.A. 36 (2981).
- 633.63-2.19 Stoker, G. L.** Soil deficiencies as related to sugar-beet seed production in the Willamette Valley, Oregon. *Proc. Amer. Soc. Sug. Beet Tech.* 3, 1942 (103-111). C.A. 38 (2778). VII, 4
- 633.63-2.19 : 546.22 Reinau, E. H.; Macke, W.** When is sulphur a prophylactic against heart rot of the sugar beet? *Angew. Bot.* 23, 1941 (348-360). R.A.M. 21 (400). V, 6
- 633.63-2.19 : 546.27 Bertrand, G.** Heart-rot in beets and its treatment with boron. *Ann. Ferment.* 5, 1939 (349-370). *Biol. Abs.* 15 (135).
- 633.63-2.19 : 546.27 Doerell, E. G.** Practical tests with borax, boric acid and borated superphosphate in beet culture. The loss of boron applied in fertilizers. *C.R. Inst. Int. Rech. Better.* 9, 1939 (192-199). C.A. 34 (5989). IV, 1
- 633.63-2.19 : 546.27—Cook, R. L.; Millar, C. E.** The effect of borax on the yield, appearance, and mineral composition of spinach and sugar beets. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (227-234).
- 633.63-2.19 : 546.27—Stoker, G. L.; Tolman, B.** Boron deficiency relations in sugar beets grown for seed in Oregon. *J. Amer. Soc. Agron.* 33, 1941 (657-665).



## BIBLIOGRAPHY OF SOIL SCIENCE

- VII, 2    **633.63-2.19:546.27—Meyer-Hermann, K.** Boron as a remedy for heart and dry rot of (sugar) beets. *Cbl. Zuckerindust.* 50, 1942 (144-146). C.A. 37 (4849).
- VI, 4    **633.63-2.19:546.27—Osmond, D. A.** A note on heart-rot in sugar beet in Herefordshire. *Long Ashton Agric. Hort. Res. Sta. Ann. Rept.* 1942 (46-48).
- VII, 1    **633.63-2.19:546.27—Brickley, W. D.** The efficiency of spray treatment as a remedy for boron deficiency in sugar beet and swedes and for manganese deficiency in oats. *Fire J. Dept. Agric.* 40, 1943 (144-148).
- V, 5    **633.63-2.19-1.811.2—Afanasiev, M. M.** Phosphate deficiency of sugar beets in Montana. *Plant Dis. Repr.* 25, 1941 (414-415). R.A.M. 21 (278).
- VII, 4    **633.63-2.19-1.811.2—Green, J.** Phosphorus and nitrogen deficiency in sugar beets. *Proc. Amer. Soc. Sug. Beet Tech.* 3, 1942 (101-102). C.A. 38 (2779).
- 633.63-2.19-1.811.2—Jones, R. A.** Phosphorus deficiency blight of beets. *Proc. Amer. Soc. Sug. Beet Tech.* 3, 1942 (66-68). *Int. Sug. J.* 44 (189).
- VII, 4    **633.63-2.19-1.811.2—Morris, H. E.** Conditions favoring phosphate deficiency in sugar beets. *Proc. Amer. Soc. Sug. Beet Tech.* 3, 1942 (422). *Sugar* 39, 8 (42).
- IV, 6    **633.63-2.2-1.582—Thorne, G.** Control of sugar-beet nematode by crop rotation. *U.S.D.A. Farm. Bull.* 1514, 1941, pp. 19.
- IV, 1    **633.63-2.4-1.43—Young, H. C.** Soil conditions affecting sugar beets. *Sug. Beet J.* 5, 1940 (127-129, 137-138). R.A.M. 19 (637).
- 633.63-2.4-1.81—Young, H. C.** Fertilizers in relation to the incidence of black root. *Sug. Beet J.* 8, 1943 (212-218). *Sugar* 38, No. 9, 1943 (35-36); 39, No. 6, 1944 (28-31). R.A.M. 22 (508). E.S.R. 89 (691).
- VII, 4    **633.63-2.4-1.811—Afanasiev, M. M.; Carlson, W. E.** Relation of phosphorus and nitrogen to the amount of seedling diseases of sugar beets. *Proc. Amer. Soc. Sug. Beet Tech.* 3, 1942 (407-411). C.A. 38 (2779).
- VI, 2    **633.63-2.4-1.811—Afanasiev, M. M.; Morris, H. E.** Control of seedling diseases of sugar beets in Montana. *Phytopath.* 32, 1942 (477-486). E.S.R. 87 (536).
- V, 3    **633.63-2.4-1.84—Leach, L. D.; Davey, A. E.** Reducing southern sclerotium rot of sugar beets with nitrogenous fertilizers. *J. Agric. Res.* 64, 1942 (1-18).
- VII, 3    **633.63-2.8—Decoux, L.; Roland, G.; Simon, M., et al.** Result of measures taken against the yellows disease of sugar beets. *Inst. Belge Amélior. Better. Pub.* 9, 1941 (63-82). C.A. 38 (1601).
- 633.681-1.5—Cada, E.; Nipal, S.; Cueto, D. C., et al.** Cultural studies of arrowroot, edible canna, and turmeric in the College of Agriculture. *Philipp. Agricult.* 29, 1941 (694-705). *Biol. Abs.* 15 (989).
- 633.681-1.5—Seale, J. D.** Arrowroot (*Maranta Arundinacea*). *J. Jamaica Agric. Soc.* 48, 1944 (22-24).
- 633.682-1.5—Colon, J. L.** Yucca, its cultivation, and utilization. *Agric. Venezol.* 4, No. 39, 1939 (40-50). *Biol. Abs.* 16 (1225).

## FERTILIZERS AND GENERAL AGRONOMY

- 633.682-1.5—Springenguth, W.** Cultivation, diseases and pests of cassava on the coast of the State of Santa Catharina (Brazil). *Tropenpflanzer* 43, 1940 (286-306). R.A.M. 20 (286).
- 633.682-1.5—Fernando, M.; Jayasundera, E. S.** Cultural experiments with cassava (*Manihot utilissima* Pohl)—I. *Trop. Agrist.* 98, No. 3, 1942 (3-8).
- 633.682-1.5—Lalla, C. D.** An accidental discovery *re* cassava cultivation. *Proc. Agric. Soc. Trin. Tob.* 42, 1942 (63-65, 67-69). Hort. Abs. 12 (160). VI, 1
- 633.682-1.81—Molinary-Salés, E.; Juliá, F.** Fertilizer experiments with cassava. *P.R. Agric. Expt. Sta. Ann. Rept.* (1938-39), 1939, pp. 89. Hort. Abs. 10 (361). IV, 3
- 633.685-1.5—Uzcátegui, L.** Cultivation of yams. *Agric. Venezol.* 6, No. 64, 1941 (5-10). Biol. Abs. 16 (988).
- 633.685-1.5—McNamee, E. U.** More about yams. *J. Jamaica Agric. Soc.* 46, 1942 (261-262).
- 633.685-1.816.3—Philips, D.** Manuring the yam hill. *J. Jamaica Agric. Soc.* 45, 1941 (187). Biol. Abs. 17 (843). VI, 3
- 633.689-1.5—Allen, E. F.** The cultivation of *Colocasia esculenta* (L.) Schott. in Malaya. *Malay. Agric. J.* 28, 1940 (392-399).

## 633.7 STIMULANTS

- 633.71 : 577.15.04—McEvoy, E. T.** Responses of tobacco seedlings to chemical growth substances. *Sci. Agric.* 22, 1942 (528-532). V, 5
- 633.71-1.4 : 581.144.2—Gier, L. J.** Root systems of Bright Belt tobacco. *Amer. J. Bot.* 27, 1940 (780-787).
- 633.71-1.417—Stinson, F. A.** Decomposition of organic matter in flue-cured tobacco soils. *Lighter* 11, No. 2, 1941 (18-19). IV, 4
- 633.71-1.417—Horton, H. A.** The relation of soil organic matter to the production of flue-cured tobacco. *Sci. Agric.* 22, 1942 (547-551). V, 5
- 633.71-1.427.3—Shear, G. M.** Plant tissue tests versus soil tests for determining the availability of nutrients for tobacco. *Va. Agric. Expt. Sta. Tech. Bull.* 84, 1943, pp. 15. Biol. Abs. 17 (1557). VI, 4
- 633.71-1.435 : 581.192—Yakovuk, A. S.** Modifications of some characters in *Nicotiana tabacum*. *VITIM* No. 139, 1939 (69-76). C.A. 35 (7089). [R.e.] VI, 3
- 633.71-1.46—Giovannozzi, M.** Microbiological investigations on tobacco-field soils. *Boll. Tec. Ist. Sper. Tab. Scafati* 38, 1941 (13-30). C.A. 37 (3216).
- 633.71-1.5—Chetty, C. V. S.** Methods of production and marketing of cigarette and cigar tobacco in the United States of America, Canada, Java and Sumatra. *Imp. Council. Agric. Res. Misc. Bull.* 48, 1942, pp. 91.
- 633.71-1.5—McMurtrey, J. E., Jr.; Bacon, C. W.; Ready, D.** Growing tobacco as a source of nicotine. *U.S.D.A. Tech. Bull.* 820, 1942, pp. 39. B.C.A.B. III, 1943 (71). Biol. Abs. 17 (841).
- 633.71-1.51—Mandelson, L. F.; McNee, H.** The plough cultivation of tobacco. *Queensland Agric. J.* 54, 1940 (349-352).

# BIBLIOGRAPHY OF SOIL SCIENCE

- 633.71-1.531-- Brown, D. D.** Tobacco culture in Southern Rhodesia. Seed-beds. *Rhod. Agric. J.* 38, 1941 (487-501).
- 633.71-1.531 Sharp, A.** Tobacco seed-bed management. *J. Dept. Agric. W. Aust* 16, 1941 (136-142).
- IV, 3 **633.71-1.531-1.462 Grushevoi, S. E. ; Levykh, P. M. ; Malbieva, E. I.** Methods of disinfecting seed-bed soil by natural sources of heat. *VITIM* No. 141, 1940 (49-61). R.A.M. 20 (87). [R.e.]
- 633.71-1.531-1.462 Naghski, J. ; Haley, D. E. ; Reid, J. J.** Seed-bed sterilization and tobacco wildfire. *J. Bact.* 40, 1940 (168-169). R.A.M. 19 (679).
- 633.71-1.531-1.81 Bordeleau, R.** Types of mould and seed-bed fertilization. *Lighter* 12, No. 4, 1942 (14-18).
- IV, 2 **633.71-1.544.3-- Grushevoi, S. E. ; Levykh, P. M.** Hot-bed soil made free from infection in compost heaps. *VITIM* No. 141, 1940 (42-48). [R.]
- IV, 4 **633.71-1.58 Poel, J. van der.** Further data about the influence on tobacco of the vegetation preceding it. *Meded. Del. Preesta* 3<sup>e</sup> Ser. No. 9, 1940, pp. 35. [D.u.e.]
- VII, 1 **633.71-1.58 : 581.192 Haley, D. E. ; Street, O. E. ; Farrell, M. A., et al.** The yield and composition of cigar-leaf tobacco as influenced by fertilizer and preceding crop. *Pa. Agric. Expt. Sta. Bull.* 440, 1943, pp. 21.
- IV, 3 **633.71-1.581 Lunn, W. M. ; Brown, D. E. ; McMurtrey, J. E., Jr., et al.** Tobacco following bare and natural weed fallow and pure stands of certain weeds. *J. Agric. Res.* 59, 1939 (829-845). *Biol. Abs.* 15 : 277.
- IV, 6 **633.71-1.81 Bugay, S. M.** Fertilizers and record crops of makhorka. *Tabach Prom.* 9 No. 2, 1939 (48-50). C.A. 35 (4539).
- VI, 2 **633.71-1.81 Wetzol.** Tobacco fertilization. *Tabac* 2, No. 4, 1939 (67-68). C.A. 36 (5597).
- 633.71-1.81 Barbosa, C. ; Fischer, G. J.** Fertilizer experiments with tobacco in Bahia. *Bol. Inst. Expt. Agric.* 1, 1941, pp. 52. *Biol. Abs.* 16 : 2075. [P'teg.]
- 633.71-1.81 Johnson, J. ; Ogden, W. B.** A ten-year fertilizer experiment on tobacco. *Wis. Agric. Expt. Sta. Res. Bull.* 141, 1941, pp. 24.
- VI, 2 **633.71-1.81 Rogers, W. M. ; Joachim, A. W. R.** Experiments on the manuring of cigarette tobacco in Ceylon. *Trop. Agricult.* 97, 1941 (264-271).
- 633.71-1.81--Roelofsens, P. A.** Recent research at the Deli Tobacco Experiment Station, Medan, Sumatra. *Emp. J. Expt. Agric.* 11, 1943 (15-22).
- VI, 2 **633.71-1.81 : 581.192 Schweizer, J.** Effect of fertilization on the quality of tobacco. *Tabac* 2, No. 4, 1939 (63-64). C.A. 36 (5598).
- IV, 2 **633.71-1.81 : 581.192--Willis, A. L.** The influence of seed-bed treatment on the maturity, quality and yield of flue-cured tobacco. *Lighter* 10, No. 1, 1940 (20-22). C.A. 34 (7519).
- 633.71-1.81 : 581.192--Matthews, E. M. ; Hutcheson, T. B.** Experiments on flue-cured tobacco. *Va. Agric. Expt. Sta. Bull.* 329, 1941, pp. 30. C.A. 36 (3311).

# FERTILIZERS AND GENERAL AGRONOMY

- 633.71-1.811--Bugay, S. M.** The removal of nutrients from the soil by high yields of makhorka. *Trudi Inst. Sotsial. Zemlerob.* 4, 1939 (295-303). [U.r.]
- 633.71-1.811--Böning, K. ; Böning-Seubert, E.** The effects of mineral-salt supply to plants on their content of sap, colloids and water, and on the distribution of water in the leaves. *Bodenk. Pfl.Ernähr.* 16, 1940 (260-327). Biol. Abs. 15 (284). [G.] IV, 3
- 633.71-1.811--Grizzard, A. L. ; Kangas, L.** Time and rate of plant nutrient absorption by bright tobacco. *Proc. Assoc. S. Agric. Workers* 42, 1941 (56-57). C.A. 35 (7616). VI, 3
- 633.71-1.811--Penman, F.** Nutrition of the tobacco plant. Relation to soil conditions. *J. Dept. Agric. Victoria* 39, 1941 (407-412). C.A. 37 (5815).
- 633.71-1.811--Grizzard, A. L. ; Davies, H. R. ; Kangas, L. R.** The time and rate of nutrient absorption by flue-cured tobacco. *J. Amer. Soc. Agron.* 34, 1942 (327-339). V, 4
- 633.71-1.811--Askew, H. O. ; Blick, R. T. J.** The nutrient status of flue-cured tobacco. *N.Z. J. Sci. Tech.* 25B, 1944 (210-223). VII, 4
- 633.71-1.811.3 McIntyre, E. R.** Potash keeps tobacco growing and glowing. *Better Crops with Plant Food* 24, No. 6, 1940 (20-21, 33). C.A. 34 (5991). IV, 1
- 633.71-1.811.6--Wetzel, A.** The magnesium problem in tobacco growing. *Tabak* 1, 1940 (104-110). C.A. 38 (3406). VII, 4
- 633.71-1.821.1 : 581.192--Wolf, F. A.** The influence of lime on flue-cured tobacco. *Tabak* 3, 1940 (27-28). C.A. 37 (1219). VII, 3
- 633.71-1.824--Swanback, T. R.** Effect of source on magnesium absorption by tobacco. *Conn. Agric. Expt. Sta. Bull.* 457, 1942 (239-242). C.A. 36 (7210). VI, 2
- 633.71-1.824 : 581.192--Kovalev, F. M.** Effect of magnesium on the crop and the quality of yellow cigarette tobacco. *Tabach. Prom.* 10, No. 8, 1940 (21-23). C.A. 36 (2073). VI, 3
- 633.71-1.828--Swanback, T. R.** Use of carbon black to activate growth early in the season. *Conn. Agric. Expt. Sta. Bull.* 457, 1942 (244-246). C.A. 36 (7215). VI, 2
- 633.71-1.83--Bordeleau, R. A.** Effect of different levels of potash on different soil types of the Yamaska Valley. *Lighter* 11, No. 2, 1941 (19-21).
- 633.71-1.83 : 581.192--Kravchenko, M. A.** Effect of fertilizers containing potassium and chlorine on the crop and quality of *Nicotiana rustica*. *Tabach. Prom.* 10, No. 9, 1940 (26-27). C.A. 36 (2073).
- 633.71-1.83 : 581.192--Gribbins, M. F. ; Reid, J. J. ; Haley, D. E.** The distribution of potassium in bright leaf cigarette tobacco and its influence on the quality of the leaf. *J. Agric. Res.* 63, 1941 (31-39). V, 1
- 633.71-1.83 : 581.192--Haley, D. E. ; Reid, J. J.** The bearing of potassium on the quality of tobacco. *Soil Sci.* 55, 1943 (79-83). VI, 3
- 633.71-1.84 : 581.192--Römer, A.** The effect of nitrogen fertilizer on the nicotine content of tobacco. *Umschau* 44, 1940 (699-701). C.A. 36 (5598).

## BIBLIOGRAPHY OF SOIL SCIENCE

- 633.71-1.84 : 581.192—Vickery, H. B. ; Pucher, G. W. ; Wakeman, A. J., et al. Chemical investigations of the tobacco plant. VIII. The effect upon the composition of the tobacco plant of the form in which nitrogen is supplied. *Conn. Agric. Expt. Sta. Bull.* 442, 1940 (65-119). C.A. 35 (5234).
- 633.71-1.84 : 581.192 Anderson, P. J. ; Swanback, T. R. ; LeCompte, S. B., Jr. Influence of the nitrogenous fertilizer materials on the nitrogen content of the cured leaves. *Conn. Agric. Expt. Sta. Bull.* 444, 1941 (229-232). C.A. 36 (3310).
- VI, 3 633.71-1.84 : 581.192 Karraker, P. E. ; Bortner, C. E. The amount of available nitrogen under Burley tobacco and its effect on yield and quality of the crop. *Proc. Assoc. S. Agric. Workers* 42, 1941 (98-99). C.A. 35 (7616).
- 633.71-1.84 : 581.192 Michael, G. The effect of a nitrogenous top-dressing on the nitrogen metabolism of green leaves. *Bodenk. PflErnahr* 31, 1943 (184-196). C.A. 38 (3070). [G.]
- 633.71-1.84 : 581.192 Mittelberger, H. von. A study of the changes of protein relationships with age in leaves of tobacco plants receiving different amounts of nitrogen. *Bodenk. PflErnahr* 33, 1943 (49-45). [G.]
- VI, 2 633.71-1.841.7 Anderson, P. J. ; Swanback, T. R. Relative crop-producing capacity of urea and cottonseed meal. *Conn. Agric. Expt. Sta. Bull.* 457, 1942 (229-234). C.A. 36 (7212).
- VI, 2 633.71-1.85 Swanback, T. R. ; Morgan, M. F. ; Anderson, P. J. Effect of some sources of phosphorus on cigar leaf tobacco. *Conn. Agric. Expt. Sta. Bull.* 457, 1942 (234-239). C.A. 36 (7215).
- 633.71-1.86 : 581.192 Perez, R. Relationship between the content of organic material in soil and the quality of tobacco. *Tabac* 45, 1942 (26-29). C.A. 38 (3406).
- 633.71-1.875 Brown, D. D. Use of compost in the manurial treatment of flue-cured tobacco. *Rhod. Agric. J.* 40, 1943 (110-114).
- VII, 4 633.71-2-1.582 Clayton, E. E. ; Gaines, J. G. ; Smith, T. E., et al. Control of flue-cured tobacco root diseases by crop rotation. *U.S.D.A. Farm Bull.* 1952, 1944, pp. 12.
- VI, 3 633.71-2.19 Shear, G. M. Factors affecting physiological breakdown of maturing tobacco. *Va. Agric. Expt. Sta. Tech. Bull.* 74, 1941 (3-16). C.A. 36 (3315).
- 633.71-2.2 Jack, R. W. Cultural measures for control of root-knot edworm, with special reference to tobacco. *Rhod. Agric. J.* 38, 1941 (546-550).
- 633.71-2.3-1.58 Smith, T. E. Control of bacterial wilt (*Bacterium solanacearum*) of tobacco as influenced by crop rotation and chemical treatment of the soil. *U.S.D.A. Circ.* 692, 1944, pp. 16.
- IV, 1 633.71-2.4-1.58 Johnson, E. M. ; Valleau, W. D. Control of blackfire of tobacco in western Kentucky. *Ky. Agric. Expt. Sta. Bull.* 399, 1940 (19-39). R.A.M. 19 (618).
- IV, 3 633.71-2.4-1.58 Popova, A. A. Agrotechnical methods in the control of wildfire of Indian tobacco. *VITIM* No. 141, 1940 (176-195). R.A.M. 20 (89). [R.e.]
- IV, 3 633.71-2.4-1.81—Popova, A. A. Effect of fertilizers on attacks of wild fire and by *Orobancha ramosa* L. (on *Nicotiana rustica*). *VITIM* No. 141, 1940 (158-175). [R.e.]

# FERTILIZERS AND GENERAL AGRONOMY

- 633.71-2.4-1.841.7—Henderson, R. G. Treatment of tobacco plant bed soil with nitrogenous fertilizers. *Agric. News Let.* No. 9, 1941 (72-78). R.A.M. 21 (167). V, 3
- 633.71-2.8—Hill, A. V. ; Allan, F. E. Yellow dwarf of tobacco in Australia. III. Occurrence and effect of agronomic practices. *Aust. J. Coun. Sci. Indust. Res.* 15, 1942 (13-25).
- 633.72 : 634.953.6—Winter, E. J. ; Bora, M. The species of shade trees used on tea gardens. *Tocklai Expt. Sta. Memo.* 12, 1940, pp. 18.
- 633.72-1.415.1—Chkhaidze, I. ; Kvachantiradze, A. Tea plants on the geoplots of the VNIChSK during the winter of 1939-40. *Sovet. Subtrop.* No. 9, 1940 (34-36). [R.] V, 1
- 633.72-1.415.1—Goletiani, G. I. Effect of the reaction of the medium on the nitrogen-phosphorus nutrition of the tea plant. *Dokl. Akad. S.-Kh. Nauk* No. 17, 1940 (25-27). [R.] IV, 2
- 633.72-1.613—Bergcultures. Soil conservation in tea-seed gardens. *Bergcultures* 14, 1940 (1147-1148). [Du.]
- 633.72-1.81—Schoorel, A. F. Results of manurial experiments with tea. *Bergcultures* 15, 1941 (518-527). [Du.] IV, 6
- 633.72-1.81—Woodford, E. K. ; Cooper, H. R. A factorial experiment on the manuring of young tea. *Emp. J. Expt. Agric.* 9, 1941 (12-22).
- 633.72-1.81—Eden, T. A note on irregularity in manuring. *Tea Quart.* 15, 1942 (27-28).
- 633.72-1.81—Eden, T. Manuring programmes with rationed manures. *Tea Quart.* 16, 1943 (16-18). VI, 4
- 633.72-1.811—Goletiani, G. I. The application of chemistry to the tea plantation. *Sovet. Subtrop.* No. 9, 1940 (6-12). C.A. 37 (2502). VII, 2
- 633.72-1.811.3—Eden, T. Note on "Potash deficiency in tea cultivation" in relation to Ceylon conditions. *Tea Quart.* 13, 1940 (146-147).
- 633.72-1.811.3—Haan, I. de. Potash requirements of tea. *Bergcultures* 14, 1940 (1292-1295). [Du.]
- 633.72-1.811.3—Schoorel, A. F. Potash requirements of tea. II. *Bergcultures* 14, 1940 (1336-1339). [Du.]
- 633.72-1.816.2—Bruce, A. Periodicity of nitrification. Part I. Tea area. *Trop. Agricul.* 95, 1940 (325-332). IV, 4
- 633.72-1.86/7—Cooper, H. R. Experiments with cattle manure, humus composts, and unfermented organic waste materials. *Tocklai Expt. Sta. Memo.* 11, 1940, pp. 36. Malay. Agric. J. 28 (448-449).
- 633.72-2.19—Haan, I. de. Deficiency signs exhibited by tea and caused by an insufficient supply of each of the principal mineral elements except potassium. *Arch. Theekult.* 15, 1941 (1-32). [Du.e.]
- 633.72-2.19 : 546.22—Forbes, A. P. S. The tea crop and drought. *Nyasaland Agric. Quart. J.* 1, No. 3, 1941 (15-19). Biol. Abs. 46 (2084). VI, 1
- 633.72-2.19 : 546.22—Forbes, A. P. S. Some observations on the "yellows" sulphur deficiency disease of tea. *Nyasaland Agric. Quart. J.* 2, No. 3, 1942 (20-26). R.A.M. 22 (42). VI, 2
- 633.72-2.19-1.415.3—Gadd, C. H. "Bitten-off" disease of tea seedlings. *Tea Quart.* 13, 1940 (54-58). R.A.M. 19 (677). IV, 1

# BIBLIOGRAPHY OF SOIL SCIENCE

- 633.72-2.19-1.415.3—Pfältzer, A. A preliminary communication on the so-called bitten-off disease of tea seedlings. *Bergcultures* 14, 1940 (1364-1365). [Du.]
- IV, 2 633.72-2.19-1.811.3—Haan, I. de; Schoorel, A. F. Potash deficiency in tea culture. *Arch. Thecult.* 14, 1940 (43-81). [Duc.]
- IV, 2 633.72-2.4-1.5—Gadd, C. H. Ring-barking of trees, and root diseases. *Tea Quart.* 13, 1940 (117-123).
- VII, 4 633.72-2.51—Marsh-Smith, E. C. Tea weeding. *Tea Quart.* 16, 1943 (42-45).
- IV, 1 633.72-2.51-1.51—Eden, T. Studies in the yield of tea. IV. The effect of cultivation and weeds on crop growth. *Emp. J. Expt. Agric.* 8, 1940 (268-279).
- VII, 4 633.72-2.7-1.81—Gadd, C. H. Does manuring reduce the damage caused by shot-hole borer? *Tea Quart.* 16, 1943 (30-39).
- V, 1 633.73 : 581.144.2—Guiscasfré-Arrillaga, J.; Gómez, L. A. Studies of the root system of *Coffea arabica* L.—II. Growth and distribution in Catalina clay soil. *J. Agric. Univ. P.R.* 24, 1940 (109-117). E.S.R. 84 (764).
- VI, 3 633.73 : 581.144.2—Guiscasfré-Arrillaga, J.; Gómez, L. A. Studies of the root system of *Coffea arabica* L.—III. Growth and distribution of roots of 21-year old trees in Catalina clay soil. *J. Agric. Univ. P.R.* 26, No. 2, 1942 (34-39). E.S.R. 88 (198). [E.sp.]
- VII, 1 633.73-1.416.871.1—Netto, J. E. de P. The concentration of manganous ions in the soil: the uptake of manganese by the coffee plant and its relation to the chlorophyll content of the leaves. *Bol. Sup. Serv. Café* 17, 1942 (4-20, 187-198). [Pt.]
- V, 5 633.73-1.459-1.61—Sinclair, A. J. Control of erosion. Strip-weeding in coffee. *Coffee Bd. Kenya Mo. Bull.* 7, 1942 (8, 4). Hort. Abs. 12 (106).
- IV, 4 633.73-1.531—Snoep, W.; Veen, R. van der. A discussion of planting distances for coffee. *Bergcultures* 15, 1941 (180-185). [Du.]
- IV, 4 633.73-1.544.7—Lucy, A. B. Coffee manurial and mulching experiments. *Malay Agric. J.* 29, 1941 (68-77, 286).
- IV, 2 633.73-1.58—Snoep, W. Results of two soil-treatment experiments with young coffee. *Bergcultures* 14, 1940 (1296-1302). [Du.]
- IV, 6 633.73-1.58—Snoep, W. The improvement of coffee soils and the contribution of soil treatment thereto. *Bergcultures* 15, 1941 (640-650). [Du.]
- V, 1 633.73-1.81—Snoep, W. Results of manurial experiments on coffee in the Malang district of the Central and East-Java experimental station. *Bergcultures* 15, 1941 (1000-1010). [Du.]
- 633.73-1.81—Jones, G. H. G. Further notes on the manuring of coffee. *Coffee Bd. Kenya Mo. Bull.* 7, 1942 (22-23). Hort. Abs. 12 (109).
- IV, 6 633.73-1.811—Schweizer, J. What planted coffee and rubber take out of the soil and what they return to it. Preliminary communication. *Bergcultures* 15, 1941 (704-711). [Du.]
- 633.73-1.811—Tropical Agriculture. Investigations on the nutrition of *Coffea arabica* L. *Trop. Agric. Trin.* 18, 1941 (13-14).

## FERTILIZERS AND GENERAL AGRONOMY

- 633.73-1.874—Mendes, J. E. T.** Green manuring for coffee. *Inst. Agron. Campinas Bol.* 24, 1940, pp. 13. *Rev. Inst. Café* 15, No. 158, 1940. [Pt.]
- 633.74-1.4—Jolly, A. L.** The effect of age of field on cacao yields in Grenada compared with the Montserrat district of Trinidad. *Trop. Agric. Trin.* 20, 1943 (47-50).
- 633.74-1.421—Jolly, A. L.** Uniformity trials on estate cacao fields in Grenada, B.W.I. *Trop. Agric. Trin.* 19, 1942 (167-174).
- 633.74-1.43 : 581.144.2—McCreary, C. W. R. ; McDonald, J. A. ; Mulloon, V. I. ; Hardy, F.** The root system of cacao. Results of some preliminary investigations in Trinidad. *Trop. Agric. Trin.* 20, 1943 (207-220). VII, 2
- 633.74-1.432.2 : 535.21—Cobley, L. S.** The effect of shade on the growth rate of cacao cuttings. *Trop. Agric. Trin.* 19, 1943 (227-233).
- 633.74-1.433.1—Vine, H. ; Thompson, H. A. ; Hardy, F.** Studies on aeration of cacao soils in Trinidad. Introduction, and Part I: Porosity and air-space in a cacao soil-type in Trinidad. Part II: Soil-air composition in certain cacao soil-types in Trinidad. *Trop. Agric. Trin.* 19, 1942 (175-180, 215-223). VI, 1
- 633.74-1.433.1—Hardy, F.** Studies on aeration and water supply in some cacao soils of Trinidad. *Trop. Agric. Trin.* 20, 1943 (89-104).
- 633.74-1.5—Pound, F. J.** The replanting of cocoa fields. *Proc. Agric. Soc. Trin. Tob.* 41, 1941 (629-631, 633-635, 637-639, 641).
- 633.74-1.544.7—Hardy, F.** The teachings of the Dominica cacao-mulching experiment. *Trop. Agric. Trin.* 18, 1941 (75-84). C.A. 35 (4538).
- 633.74-1.81—Pound, F. J.** Manurial experiments on cocoa in Trinidad and Tobago [1939]. *Trin. Tob. Dept. Agric.* 1940, pp. 127. IV, 4
- 633.74-2.19—Humphries, E. C.** Wilt of cacao fruits (*Theobroma cacao*). I. An investigation into the causes. *Ann. Bot.* 7, 1943 (31-44). VI, 3
- 633.75-1.5—Heeger, E. F. ; Bauer, K. H.** Investigations relating to the morphine content of commercial opium poppies and of some other varieties of poppy, and some investigations referring to the possibility of opium production in Germany. *Landw. Jahrb.* 90, 1940 (397-429). [G.] V, 4
- 633.75-1.5—Sessous, G. ; Schell, H.** Peculiarities and the possible spread of poppy cultivation. *ForschDienst.* 9, 1940 (405-406). *Hort. Abs.* 11 (127). [G.] IV, 6
- 633.75-1.81—Lukovnikov, E. K.** Effect of fertilizers on the opium poppy. *Khim. Sotsial. Zemled.* No. 7, 1940 (64-68). [R.] IV, 6
- 633.75-2.19—Pape, H.** Poppy heart rot. An oil poppy disease new to Germany. *Kranke Pflanze* 20, 1943 (63-64). R.A.M. 23 (189).
- 633.75-2.19 : 546.27—Bergström, I.** Boron deficiency in oil poppies. *Värtskyddsnotiser* No. 4, 1942 (54-57). *Hort. Abs.* 14 (31). VII, 3
- 633.75-2.19 : 546.27—Brandenburg, E.** Experiments on boron deficiency in the poppy. *Ztschr. PflKrank. PflSchutz.* 52, 1942 (56-63). R.A.M. 21 (471). VI, 1



# BIBLIOGRAPHY OF SOIL SCIENCE

- IV, 5    **633.76-1.5**—**Momot, K. G.** The cocaine bush. *Sovet. Subtrop.* No. 7, 1940 (54-57). Hort. Abs. 11 (136). [R.]
- 633.77**—**Nolan, L. C.**; **Wooster, J. L.** Yerba maté. *Foreign Agric.* 6, 1942 (313-319).
- V, 5    **633.77: 016**—**Hannay, A. M.** Maté. *U.S.D.A. Bur. Agric. Econ., Econ. Lib. List* 16, 1940, pp. 9. E.S.R. 84 (411).
- 633.77-1.5**—**Mutinelli, A.** Various notes relating to the culture of yerba maté. *Min. Agric. Argentina Pub. Misc.* 53, 1939, pp. 11. [Sp.]
- 633.78-1.5**—**Kohls, H. L.**; **Rather, H. C.** Growing chicory seed. *Mich. Agric. Expt. Sta. Quart. Bull.* 23, 1941 (243-250).
- 633.78-1.811**—**Kasparova, S. A.**; **Akimochkina, T. A.** Effect of mineral nutrition on the resistance of chicory to micro-organisms. *Bull. Acad. Sci. (U.S.S.R.) (Cl. Sci. Math.) Sér. Biol.* 1940 (147-163). C.A. 35 (2658). [R.e.]
- 633.79-1.4**; **581.144.2**—**Beard, F. H.** Root studies X. The root-systems of hops on different soil types. *J. Pomol.* 20, 1943 (147-154).
- 633.79-1.5**—**Beard, F. H.** Hops: their varieties and cultivation. *J. Inst. Brew.* 49, 1943 (119-125).
- VI, 4    **633.79-1.5**—**Nguyen-Cong-Tien.** Vôi (*Eugenia operculata* Roxb.). *Proc. Sixth Pacif. Sci. Cong.* (1939) 4, 1943 (719-725). R.A.E. 31A (294).
- 633.79-1.81**—**Annales de Gembloux.** Manurial experiments with hops in Belgium. *Ann. Gembloux* 1940 (113-133). *Ernähr. Pfl.* 37 (59-60).
- 633.79-1.81**—**Burgess, A. H.** Hop manuring. *Worce. Agric. Chron.* 11, 1943 (231-233, 235, 237, 239, 241).
- VII, 2    **633.79-1.811.9**—**Hoed, F.** Experiments on the value of fertilizers on hops. 1941. *Rév. Boiss.* 3, 1942 (101-104). C.A. 37 (4189).

## 633.8 AROMATIC, MEDICINAL AND OIL PLANTS

- 633.812.42-1.5**—**Worstley, R. R. Le G.** Experimental lemon-grass plots in Amani. *Bull. Imp. Inst.* 37, 1939 (180-182). *E. Afric. Agric. J.* 6, 1941 (180).
- 633.812.42-1.5**—**David, P. A.** Trial culture of citronella grass. *Philipp. Agrist.* 29, 1940 (507-517). C.A. 35 (2264).
- 633.812.62-1.5**—**Landbouw.** Cultivation of the rose geranium (*Pelargonium radula*). *Landbouw* 17, 1941 (252-254). Hort. Abs. 11 (334).
- 633.812.67-1.5**—**Bulletin of the Imperial Institute.** *Leptospermum citratum* oil from Kenya. *Bull. Imp. Inst.* 40, 1942 (1-5). Hort. Abs. 12 (161).
- 633.812.67-1.5**—**Walker, G.** Notes on *Leptospermum citratum*. *E. Afric. Agric. J.* 1942 (202-203).
- IV, 2    **633.812.764-1.81**—**Savitsky, K. A.** The effect of fertilizing on the yield of thyme. *Khim. Sotsial. Zemled.* 7, No. 8-9, 1938 (95-96). C.A. 34 (7513).
- 633.815.889.2**—**Stockberger, W. W.** Ginseng culture. *U.S.D.A. Farm. Bull.* 1184, 1941, pp. 17.

# FERTILIZERS AND GENERAL AGRONOMY

- 633.822-1.81—Ellis, N. K. ; Fawcett, K. I. ; Gaylord, F. C., et al.** A study of some factors affecting the yield and market value of peppermint oil. *Indiana Agric. Expt. Sta. Bull.* 461, 1941, pp. 27. Biol. Abs. 16 (233). V, 3
- 633.822-1.81—Lutzenberger.** Conditions for the successful cultivation of peppermint. *Mitt. Landw.* 57, 1942 (839-840). C.A. 38 (3772). VII, 4
- 633.822-1.811.9—Bode, H. R.** The influence of trace elements on growth of peppermint. *Gartenbauwiss.* 14, 1940 (654-664). Biol. Abs. 16 (1002). V, 4
- 633.822-1.83—Powers, W. L. ; Jones, J. S.** Peat land fertilizers for yield and quality of mint. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (395-397). Biol. Abs. 17 (1970). VII, 1
- 633.822-1.84—Il'in, S. G.** The effect of mineral nutrition on the formation of essential oils in the plant. *Tekhn. Kul.* No. 1, 1940 (87-98). C.A. 37 (3126). VII, 2
- 633.842-1.5—Beattie, J. H. ; Doolittle, S. P.** Production of peppers. *U.S.D.A. Leaflet* 140, 1940, pp. 6.
- 633.842-1.5—Cochran, H. L.** Better methods of pimiento production. *Ga. Expt. Sta. Bull.* 218, 1941, pp. 41.
- 633.842-1.5—Terry, H. B.** Capsicums: bell peppers, sweet pepper, or pimiento peppers. *Farm. S. Africa* 16, 1941 (327-328).
- 633.842-1.5—Miège, E.** Cultivation of capsicum. *Fruits Primeurs* 12, 1942 (140-142). Hort. Abs. 13 (114).
- 633.842-1.5—Deshpande, R. B.** The cultivation of chillies. *Indian Farm.* 4, 1943 (188-191).
- 633.842-1.811—Cochran, H. L. ; Olson, L. C.** Monthly absorption of nutrients from the soil by the Perfection pimiento plant. *Plant Physiol.* 15, 1940 (765-768). Biol. Abs. 15 (560). IV, 4
- 633.842-1.811—Cochran, H. L. ; Olson, L. C.** Uptake of nutrients by the Perfection pimiento plant under field conditions and its relation to fertilizer practices in Georgia. *Ga. Expt. Sta. Bull.* 208, 1941, pp. 16.
- 633.842-2.4-1.432.2—Pontis, R. E.** The "wilt" of chilli (*Capsicum annuum*) in Mendoza province. *Rev. Argent. Agron.* 7, 1940 (113-127). R.A.M. 19 (676). [Sp.e.] IV, 1
- 633.85-1.5—Boguslawski, E. von.** Cultural trials with some newer oil plants. *ForschDienst.* 12, 1941 (161-176). [G.]
- 633.85-1.582—Ukrainsky, V. T.** Crop rotation in the zones of cultivation of oil plants. *Sovet. Agron.* No. 4, 1940 (14-23). Hort. Abs. 10 (268). [R.]
- 633.85-1.81 : 581.192 Schmalzfuss, K.** Fertilizing and the quality of fat- and oil-producing plants. *Cong. Int. Tech. Chim. Indust. Agric.* 2, 1939 (581-583). C.A. 35 (5621). VI, 3
- 633.85-1.85—Gericke, S.** Phosphatic manuring of oilseed crops. *ForschDienst.* 13, 1942 (117-123). [G.]
- 633.853.55-1.5—Bulletin of the Imperial Institute.** Cultivation of castor seed in Brazil. *Bull. Imp. Inst.* 38, 1940 (321-324).
- 633.853.55-1.5—Koesnoto.** Cultivation and breeding of the castor-oil plant in the Dutch East Indies. *Landbouw* 17, 1941 (460-475). Hort. Abs. 12 (53). [Duc.]

# BIBLIOGRAPHY OF SOIL SCIENCE

- VII, 1 633.853.55-1.5—Fernando, M. The influence of manuring, spacing of hills and seedling number per hill on the yield of castor. *Trop. Agrist.* 99, No. 1, 1943 (3-12).
- IV, 6 633.853.55-1.81—Ivanov, V. K. Fertilizers as a factor in increased yields of *Ricinus*. *Khm. Sotsial. Zemled.* No. 6, 1940 (45-48). [R.]
- IV, 2 633.853.55-1.811—Golle, V. P.; Demidenko, T. T.; Critical periods in the nutrition of the castor-oil plant. *C.R. Acad. Sci. (U.S.S.R.)* 27, 1940 (284-286). C.A. 34 (7344).
- IV, 2 633.853.55-1.811—Golle, V. P.; Demidenko, T. T. Manurial requirements of the castor-oil plant. *C.R. Acad. Sci. (U.S.S.R.)* 27, 1940 (287-288). C.A. 34 (7345).
- IV, 2 633.853.55-1.811—Golle, V. P.; Demidenko, T. T. Yield of the castor-oil plant as affected by salt concentration. *C.R. Acad. Sci. (U.S.S.R.)* 27, 1940 (281-283). C.A. 34 (7344). [E.]
- V, 2 633.853.55-1.851—Ivanov, V. K. Response of the castor oil plant to phosphorites. *Dokl. Akad. S.-Kh. Nauk* No. 6, 1941 (46-48). [R.]
- 633.853.74-1.5 Paul, W. R. C.; Gaywala, P. M. The cultivation of gingelly in Ceylon. *Trop. Agrist.* 97, 1941 (321-326).
- VII, 1 633.854.56 : 581.144.2—Leonard, O. A. Influence of sod and other factors upon the distribution of small tung roots in Ruston sandy loam. *Proc. Amer. Soc. Hort. Sci.* 42, 1943 (11-16).
- 633.854.56-1.4—Drosdoff, M. Soils and tung trees. *Natl. Paint Varnish Lacquer Assoc. Sci. Sect. Cnc.* 622, 1941 (161-173). C.A. 35 (4540).
- VII, 2 633.854.56-1.427.3 Drosdoff, M. Fertilizing tung trees by leaf analysis. *Better Crops with Plant Food* 27, No. 4, 1943 (9-13, 49-50). C.A. 37 (4186).
- 633.854.56-1.427.3 Drosdoff, M. Leaf composition in relation to the mineral nutrition of tung trees. *Soil Sci.* 57, 1944 (281-291).
- 633.854.56-1.5 Robert, J. C.; Greer, S. R. Growing tung trees in South Mississippi. *Miss. Agric. Expt. Sta. Bull.* 322, 1938, pp. 11.
- VI, 3 633.854.56-1.5—Webster, C. C. Cultivation of tung oil trees (*Aleurites fordii* and *A. montana*). *Trop. Agric. Trin.* 16, 1939 (267-271). B.C.A.B. 111, 1943 (29).
- 633.854.56-1.5—Penfold, A. R.; Morrison, F. R. Tung oil from Australian-grown trees of *Aleurites fordii*, Hemsl., with a note on *A. montana*. *Bull. Tech. Mus. Sydney* 12, 1940, pp. 34. B.C.A. 59 (754).
- 633.854.56-1.5—Webster, C. C. Notes on the cultivation of tung oil trees, I-III. *Nyasaland Tea Assoc. Quart. J.* 4, No. 3, 1940 (16-20); 5, No. 1, 1940 (5-11); 5, No. 2, 1940 (6-10). Hort. Abs. 11 (41).
- 633.854.56-1.5—Le Roux, J. C. Tung oil. *Farm. S. Africa* 16, 1941 (123-125).
- 633.854.56-1.5—Du Sautoy, W. How to establish a tung-tree plantation. *Farm. Week. S. Africa* 66, 1944 (934-935).

# FERTILIZERS AND GENERAL AGRONOMY

- 633.854.56-1.5 : 581.192**—Penfold, A. R. ; Morrison, F. R. ; Smith-White, S. Studies on the cultivation of the tung oil tree, *Aleurites fordii*. Part II. Study of a heavy yield of fruit obtained on the north coast of New South Wales. *J. Proc. Roy. Soc. N.S.W.* 75, 1942 (148-156).
- 633.854.56-1.544.7** Painter, J. H. ; Potter, G. F. Mulch VII, 1 versus cultivation in the young tung orchard. *Proc. Amer. Soc. Hort. Sci.* 42, 1943 (17-20).
- 633.854.56-1.584**—Schultz, E. F. The intercropping of tung VII, 2 trees. *Rev. Indust. Agric. Tucumán* 32, 1942 (339). *Herb. Abs.* 13 (290).
- 633.854.56-1.81**—Kimbrough, W. D. ; Miller, J. C. ; Wilson, W. F. Fertilizer results with tung trees and recommended cultural methods. *Ea. Agric. Expt. Sta. Bull.* 352, 1942, pp. 16. *For. Abs.* 5 (12).
- 633.854.56-1.81**—Merrill, S., Jr. ; Kilby, W. W. ; Greer, VII, 1 S. R. Fertilization of tung seedlings in the nursery. *Proc. Amer. Soc. Hort. Sci.* 41, 1942 (167-170).
- 633.854.56-2.111-1.81**—Fernholz, D. L. ; Potter, G. F. Preliminary experiments on the resistance of the tung tree to low temperature. *Proc. Amer. Soc. Hort. Sci.* (1941) 39, 1941 (167-172).
- 633.854.56-2.19 : 546.56** Drosdoff, M. ; Dickey, R. D. VII, 1 Copper deficiency of tung trees. *Proc. Amer. Soc. Hort. Sci.* 42, 1943 (79-84).
- 633.854.56-2.19 : 546.711** Heylen, C. L. P. Effects produced IV, 1 by manganese deficiency in the growth of tung-oil plants (*Aleurites fordii*) developed in nutrient solutions. *Rev. Cent. Estud. Ing. Quím. Univ. Santa Fé* No. 14, 1939 (39-41). *C.A.* 34 (6398).
- 633.854.56-2.19 : 546.711** Dickey, R. D. ; Drosdoff, M. VII, 1 Control of manganese deficiency in a commercial tung orchard. *Proc. Amer. Soc. Hort. Sci.* 42, 1943 (74-78).
- 633.854.56-2.19 : 546.72**—Dickey, R. D. Iron deficiency of VI, 2 tung. *Proc. Amer. Soc. Hort. Sci.* 40, 1942 (254).
- 633.854.56-2.19 : 546.72** Dickey, R. D. Iron deficiency of VII, 3 tung in Florida. *Proc. Assoc. S. Agric. Workers* 43, 1942 (173-174). *C.A.* 37 (1819).
- 633.854.56-2.19-1.811.3** Drosdoff, M. ; Painter, J. H. VII, 1 A chlorosis and necrosis of tung leaves associated with low potassium content. *Proc. Amer. Soc. Hort. Sci.* 41, 1942 (45-51).
- 633.854.56-2.19-1.811.3**—Painter, J. H. ; Drosdoff, M. Results of preliminary tests on correction of potassium deficiency in tung. *Proc. Amer. Soc. Hort. Sci.* 42, 1943 (65-68).
- 633.854.78 : 546.27** Lowenhaupt, B. Nutritional effects of boron on growth and development of the sunflower. *Bot. Gaz.* 104, 1942 (316-322).
- 633.854.78-1.432.2** Martin, E. V. Effect of soil moisture on growth and transpiration in *Helianthus annuus*. *Plant Physiol.* 15, 1940 (449-466). *Herb. Abs.* 10 (326).
- 633.854.78-1.5**—Kerle, W. D. Sunflowers. A possible sideline. *Agric. Gaz. N.S.W.* 51, 1940 (479-481). *Herb. Abs.* 11 (15).
- 633.854.78-1.5**—Garmendia, L. I. ; Costa, A. Technical economical considerations on sunflower growing. *Rev. Fac. Agron. Univ. Montevideo* 24, 1941 (87-94). *Biol. Abs.* 17 (1758).

# BIBLIOGRAPHY OF SOIL SCIENCE

- 633.854.78-1.5—Hannay, A. M.** The sunflower, its cultivation and uses. *U.S.D.A. Bur. Agric. Econ., Econ. Libr. List* 20, 1941, pp. 18. E.S.R. 86 (39).
- 633.854.78-1.5—Journal of the Jamaica Agricultural Society.** The sunflower. *J. Jamaica Agric. Soc.* 45, 1941 (125-126).
- 633.854.78-1.5—Gose, E. B.** Cultivation and uses of the sunflower, *Helianthus annuus*. *Rev. Agric. Guatemala* 20, 1943 (25-26, 49). Herb. Abs. 14 (20).
- 633.854.78-1.5—Putt, E. D.; Unrau, J.** The influence of various cultural practices on seed and plant characters in the sunflower. *Sci. Agric.* 23, 1943 (384-398). Biol. Abs. 17 (1760).
- VII, 2 **633.854.78-1.5—White, W. J.; Putt, E. D.** Sunflower production for grain. *Canada Dept. Agric. Spec. Pamph.* 69, 1943, pp. 8. Herb. Abs. 13 (206).
- 633.854.78-1.5—Blackman, G. E.** Sunflowers as an oil seed crop. *J. Min. Agric.* 50, 1944 (517-521).
- 633.854.78-1.811.7—Eaton, S. V.** Influence of sulfur deficiency on metabolism of the sunflower. *Bot. Gaz.* 102, 1941 (536-556). C.A. 35 (3684).
- IV, 6 **633.854.78-1.811.9—Demidenko, T. T.; Golle, V. P.** The effect of micro-elements on yield and composition of sunflowers. *Khim. Sotsial. Zemel.* No. 9, 1940 (38-40). [R.]
- 633.854.797—Millington, A. J.** Experiments with safflower in Western Australia. *J. Dept. Agric. W. Aust.* 20, 1943 (313-315).
- 633.854.797-1.5—Obst- und Gemüsebau.** Cultivation experiments with safflower in the Danube region. A new oil plant. *Obst- u. Gemüseb.* 6, 1942 (264). P.B.A. 13 (154).
- VII, 3 **633.854.797-1.811—Scharrer, K.; Schreiber, R.** The nitrogen and phosphoric-acid requirements of safflower. *Bodenk. Pfl. ernähr.* 31, 1943 (253-262). [G.]
- IV, 6 **633.854.797-1.83—Scharrer, K.; Schreiber, R.** The effects of increasing doses of potash in conjunction with various basal dressings on the yield and quality of safflower. *Ernähr. Pfl.* 37, 1941 (49-52, 61-64). [G.]
- 633.855-1.5—Monthly Bulletin of Agricultural Science and Practice.** The carnauba palm, the babassu palm and oiticica, useful plants of the arid and semi-arid regions of north-eastern Brazil. *Mo. Bull. Agric. Sci. Pract.* 33, 1942 (411-477).
- IV, 6 **633.855.34-1.584—Lucy, A. B.** A comparison between natural covers and clean-weeding on yields of oil palms. *Malay. Agric. J.* 29, 1941 (190-193).
- V, 2 **633.855.34-2.19-1.811.6—Fickendey, E.** Potash and magnesia deficiencies in some Sumatra soils. *Ernähr. Pfl.* 37, 1941 (88-89). [G.]
- 633.855.372—Simmons, A. G. E.** Babassu nut. *Econ. Geog.* 19, 1943 (279-282).
- 633.861.2-1.5—Budhiraja, K. L.** Kashmir saffron and methods for testing its purity. *J. Indian Chem. Soc. Indust. Ed.* 5, 1942 (135-138). B.C.A.B. III, 1943 (31).
- IV, 6 **633.861.3-1.544.7—Paul, W. R. C.; Fernando, M.** Cultural experiments with turmeric (*Curcuma domestica* Val.). I. The influence of mulching and of the size of seed on the yield of some varieties of turmeric. *Trop. Agricul.* 96, 1941 (265-268).

# FERTILIZERS AND GENERAL AGRONOMY

- 633.861.3-1.544.7—Paul, W. R. C. ; Fernando, M. Cultural experiments with turmeric (*Curcuma domestica* Val.). II. The influence of spacing, mulching and kind of seed on yield. *Trop. Agricult.* 97, 1941 (10-13). V, 1
- 633.862-4-1.81—Sewell, W. G. ; Spooner, R. C. ; Tu, S.T., et al. Indican content of Szechwan indigo and the effect of fertilizers. *J. Chinese Chem. Soc.* 9, 1942 (73-81). C.A. 38 (448). VII, 2
- 633.879-1.461.52—Ledeboer, M. S. J. Developments in pathological research on wattles. *J. S. Afric. Forestry Assoc.* No. 4, 1940 (28-45). IV, 4
- 633.879-1.5—Radeloff, H. Megasea and its cultivation in Germany. *ForschDienst.* 9, 1940 (443-454). Hort. Abs. 11 (126). IV, 6
- 633.879-1.5—Senni, L. The cultivation of tannin-bearing acacia in Italian East Africa. *Boll. Sta. Indust. Pelti* 19, 1941 (18). For. Abs. 5 (130).
- 633.879-1.5—Wimbush, S. H. A comparison of wattle growing in Natal and in Kenya. Part I—Notes on South African practice. *E. Afric. Agric. J.* 6, 1941 (121-126).
- 633.879-1.5—Wimbush, S. H. Methods of planting wattle. *E. Afric. Agric. J.* 6, 1941 (205). IV, 4
- 633.88-1.5—Landbou. Culture of *Orthosiphon grandiflorus*. *Landbou.* 17, 1941 (314-315). Hort. Abs. 11 (336).
- 633.88-1.5—Ministry of Agriculture and Fisheries. Medicinal herbs and their cultivation. *Min. Agric. Bull.* 121, 1941, pp. 22. Hort. Abs. 11 (311).
- 633.88-1.5 : 355.01—Ashby, M. War-time drug supplies and Empire production. *Bull. Imp. Inst.* 39, 1941 (106-124).
- 633.88-1.811—Tsarev, M. V. Dynamics of the accumulation of nutrient materials by medicinal plants. *Khim. Sotsial. Zemled.* No. 6, 1940 (39-44). C.A. 37 (211). VII, 2
- 633.881.33—Gomez, C. G. ; Box, M. M. Hydrastis in Spain. *Farmacognosia* 1, 1942 (19-86). [Sp.f.g.]
- 633.883.252-1.5—Lincoln, R. The aloes industry of Mauritius. *Rev. Agric. Maurice* 22, 1943 (174-184). [F.]
- 633.883.259.42-1.461.52—Leonard, L. T. *Cassia tora*, a legume not producing nodules. *J. Amer. Soc. Agron.* 34, 1942 (1059-1060).
- 633.883.259.45—Dunn, L. Cascara. *Oreg. Sch. Forestry Leaflet* 3, 1940, pp. 10. For. Abs. 5 (52).
- 633.883.259.45-1.5—British Columbia, Ministry of Agriculture. Propagation of the cascara tree, a conservation measure. *Bull. Min. Agric. B.C.* 108, 1941, pp. 9. Hort. Abs. 12 (98). V, 5
- 633.883.259.45-1.5—Davidson, J. The cascara tree in British Columbia. *Bull. Min. Agric. B.C.* A108, 1942, pp. 32. For. Abs. 4 (243).
- 633.883.259.56—Eardley, C. M. Squirted cucumber, *Ecballium Elaterium* (L.) A. Rich. *J. Dept. Agric. S. Aust.* 46, 1943 (382-384).
- 633.883.418.3-1.5—Mayne, W. W. Report on cardamom cultivation in South India. *Imp. Counc. Agric. Res. Misc. Bull.* 50, 1942, pp. 67.

# BIBLIOGRAPHY OF SOIL SCIENCE

- 633.885.1-1.5** -Evans, G. The possibility of extending *Cinchona* cultivation in the British Empire. *Emp. J. Expt. Agric.* 9, 1941 (111-124).
- 633.885.1-1.5:33** -Kerbosch, M. Some notes on cinchona culture and the world consumption of quinine. *Bull. Colon. Inst. Amsterdam* 3, 1939 (36-51). *Biol. Abs.* 16 (1241).
- VI, 2 **633.887.1-1.61** -Read, H. A. *Eucalyptus saligna* and soil reclamation. *J. S. Afric. Forestry Assoc.* 7, 1941 (50-52). *For. Abs.* 4 (153).
- IV, 6 **633.887.1-1.811** -Irving, M. A study of the effects of eucalypts on the soil, their nutrient requirements, and transpiration. *S. Afric. J. Sci.* 37, 1941 (133-135).
- 633.887.791-1.5** -Ball, R. S. Pyrethrum cultivation in Kenya. *Nyasaland Agric. Quant. J.* 3, No. 1, 1943 (11-22). *Trop. Agric. Trin.* 20, 1943 (158-161). Revised in *Nyasaland Agric. Quant. J.* 4, No. 1, 1944 (7-18). *Tea Quant.* 17, 1944 (28-36). *Bull. Imp. Inst.* 42, 1944 (13-24).
- 633.887.791-1.5** -Hartzell, A. Pyrethrum culture in Dalmatia with some applications to the Americas. *J. Econ. Ent.* 36, 1943 (320-325).
- VII, 4 **633.888.41** -Box, M. M. A contribution to the study of alkaloid-bearing drug plants. *Bol. Inst. Invest. Igien. Madrid* No. 10, 1944 (137-176). [Sp. Eng.]
- 633.888.41-1.5** -Stillings, E. N.; Laurie, A. Cultural studies of *Atropa belladonna*. *Proc. Amer. Soc. Hort. Sci.* 42, 1943 (590-592).
- 633.888.41-1.5** -Stillings, E. N.; Laurie, A. Culture studies of the drug plant *Atropa belladonna*. *Ohio Agric. Expt. Sta. Bomo. Bull.* 28, 1943 (64-74).
- VII, 2 **633.888.41-1.84** : 581.192 -De'Conno, E. The influence of the application of artificial fertilizer on the concentration of active ingredients (total alkaloids) in the root of *Atropa belladonna*. *Boll. Orit. Bot. Napoli* 15, 1941 (73-83). *C.A.* 37 (3218).
- 633.888.421** -Hopkins, J. C. F. Stramonium or stinkblair, A medicinal herb required for war purposes. *Rhod. Agric. J.* 39, 1942 (350-352, 484-485).
- 633.888.421** -Hopkins, J. C. F. Stramonium collecting. *Rhod. Agric. J.* 40, 1943 (293-299).
- 633.888.421-1.5** -Greenway, P. J. Empire production of drugs. I. Stramonium. *E. Afric. Agric. J.* 6, 1941 (199-200).
- VII, 3 **633.888.421-1.811** : 581.192 -Prasad, S. Mineral-deficiency effects on *Datura alba* Nees. *Indian J. Pharm.* 5, 1943 (65-82). *C.A.* 38 (267).

## 633.91 RUBBER PLANTS

- V, 5 **633.912-1.427.3** -Haines, W. B. A method for foliage comparisons in field experiments with *Hevea*. *Emp. J. Expt. Agric.* 10, 1942 (117-124).
- 633.912-1.466.1** -D'Angremond, A.; Hell, W. F. van. Mycorrhiza of *Hevea brasiliensis* Müll.-Arg. *Versl. Vergad. Vereen. Proefsta. Personcel* 1939, pp. 16. *R.A.M.* 20 (376). [Dut.]

# FERTILIZERS AND GENERAL AGRONOMY

- 633.912-1.584 Rubber Research Institute of Malaya.** The uses and control of natural undergrowth on rubber estates. *Rubber Res. Inst. Malaya Plant. Man.* No. 6, 1940, pp. 37. Herb. Abs. 11 (288).
- 633.912-1.584 Veen, R. van der.** Observations on root competition during a very dry monsoon. *Bergcultures* 14, 1940 (1519-1520). [Du.] IV, 3
- 633.912-1.584 Whelan, L. A. ; De Silva, C. A.** Field experiments on Dartonfield Estate - XIII. Measurements of growth in replanted areas, 1940. *Rubber Res. Scheme (Ceylon) Quart. Circ.* 17, 1940 (253-266). IV, 5
- 633.912-1.584 Bergcultures.** A ground cover for young hevea plantations. *Bergcultures* 15, 1941 (622-625). Hort. Abs. 11 (338). V, 2
- 633.912-1.584 Huntley, G.** Selected natural covers in young budded rubber. *Rubber Res. Scheme (Ceylon) Quart. Circ.* 18, 1941 (128-140).
- 633.912-1.613 Hasselhuhn, E. T.** Straight planting on undulating land. *Rubber Res. Inst. Malaya Plant. Bull.* 18, 1941 (1-2).
- 633.912-1.81 Jong, W. H. de.** Mulching and manuring with artificials applied to rubber on kloet soils. *Bergcultures* 14, 1940 (1488-1494). [Du.] IV, 3
- 633.912-1.81 Whelan, L. A.** The maintenance of soil fertility in young rubber clearings. *Rubber Res. Scheme (Ceylon) Quart. Circ.* 17, 1940 (92-108).
- 633.912-1.81 Whelan, L. A.** Some aspects of the manuring of mature rubber. *Rubber Res. Scheme (Ceylon) Quart. Circ.* 17, 1940 (228-238). IV, 3
- 633.912-1.81 Whelan, L. A. ; de Silva, C. A.** Field experiments on Dartonfield Estate - XIV. Manuring experiment with mature rubber (1940). *Rubber Res. Scheme (Ceylon) Quart. Circ.* 18, 1941 (5-12). V, 2
- 633.912-1.81 Whelan, L. A. ; de Silva, C. A.** Field experiments on Dartonfield Estate - XVI. Measurements of growth in replanted areas (1940). *Rubber Res. Scheme (Ceylon) Quart. Circ.* 18, 1941 (121-127). V, 4
- 633.912-1.81 Whelan, L. A. ; de Silva, C. A.** Field experiments on Dartonfield Estate - XIX. Measurements of growth in replanting areas. *Rubber Res. Scheme (Ceylon) Quart. Circ.* 19, 1942 (36-39). Hort. Abs. 13 (129). VII, 1
- 633.912-1.81 Whelan, L. A. ; de Silva, C. A.** Field experiments on Dartonfield Estate - XXI. Manuring experiment with mature rubber (1942). XXII. Measurements of growth in replanted areas (1943). *Rubber Res. Scheme (Ceylon) Quart. Circ.* 20, 1943 (10-11, 11-14). VII, 4
- 633.912-1.81 ; 355.01 - Rubber Research Institute Planters' Bulletin.** War-time manuring. *Rubber Res. Inst. Malaya Plant. Bull.* 13, 1940 (1-7). IV, 1
- 633.912-1.81 ; 355.01 - Whelan, L. A.** Manuring under war conditions. *Rubber Res. Scheme (Ceylon) Quart. Circ.* 17, 1940 (267-271).



# BIBLIOGRAPHY OF SOIL SCIENCE

- 633.912-1.81 : 355.01**—O'Brien, T. E. H. Some wartime problems of the rubber industry. *Rubber Res. Scheme (Ceylon) Quart. Circ.* 18, 1941 (87-98).
- VI, 2 **633.913**—Ratnaparkhe, A. D. African rubber from *Apocynaceae*: *Landolphia indica*. *Science and Culture* 7, 1941 (55). Biol. Abs. 17 (235).
- 633.913**—Mitchell, J. H.; Rice, M. A.; Roderick, D. B. Rubber analysis of plants in South Carolina. *Science* 95, 1942 (624-625). C.A. 36 (5378).
- 633.913**—Utah Agricultural Experiment Station. Rubber from western desert plants. *Utah Agric. Expt. Sta.* 3, No. 2, 1942 (2, 11). C.A. 36 (6837).
- 633.913**—Howes, F. N. Russian rubber plants. *J. Roy. Hort. Soc.* 68, 1943 (305-306). Hort. Abs. 13 (176).
- 633.913**—Howes, F. N. Russian rubber plants in Britain. *Discovery* 4, 1943 (26-30).
- 633.913**—Molotkovsky, G. Kh. On the vegetative propagation of the rubber plants kok-saghyz, tau-saghyz and krym-saghyz. *C.R. Acad. Sci. (U.S.S.R.)* 40, 1943 (291-293). [E.]
- 633.913**—Australia. Journal of the Council for Scientific and Industrial Research. Rubber from plant sources. Investigations on cryptostegia, kok-saghyz, and guayule, with a note on synthetic rubber research. *Aust. J. Coun. Sci. Indust. Res.* 17, 1944 (49-58).
- 633.913 : 016** Moyle, A. I. Bibliography and collected abstracts on rubber producing plants (other than species of *Hevea*). *Tex. Agric. Expt. Sta. Cir.* 99, 1942, pp. 228. E.S.R. 89 (678).
- 633.913 : 016** Paddick, M. E. Rubber producing plants (other than guayule and rubber trees). A list of references useful to investigators. *Colo. St. Coll. Lib. Bull.* 12, 1942, pp. 9. Biol. Abs. 17 (251).
- 633.913 : 016** Whiting, A. G. A summary of the literature on milkweeds (*Asclepias* spp.) and their utilization. *U.S.D.A. Bot. Bull.* 2, 1943, pp. 41. Biol. Abs. 18 (1279).
- 633.913-1.3** Gray, R. B. Machinery problems in the production of rubber-bearing plants. *Agric. Engng.* 24, 1943 (125-126).
- 633.913-1.5** Imperial Agricultural Bureaux. Cultivation and breeding of Russian rubber-bearing plants. *Imp. Agric. Bur.* 1944, pp. 58. (Mimeo.)
- 633.913.22** Loomis, H. F. Castilla rubber's comeback. *Agric. in Americas* 2, 1942 (171-176). Hort. Abs. 13 (19).
- VI, 2 **633.913.22** Cook, O. F. More rubber from Castilla? *Agric. in Americas* 3, 1943 (7-9).
- 633.913.31-1.4**—Youngs, F. O. The contribution of the Soil Survey to the guayule emergency rubber project. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (412-415). Biol. Abs. 17 (2186).
- 633.913.31-1.5**—Frolov, T. V. Guayule cultivation in U.S.S.R. *Soviet Subtrop.* No. 4, 1940 (35-37). Hort. Abs. 10 (279). [R.]
- 633.913.31-1.5**—Krashennikov, N. A.; Ageev, L. A. Rearing guayule in irrigated nursery beds. *Soviet Subtrop.* No. 4, 1940 (38-41). Hort. Abs. 10 (279). [R.]
- 633.913.31-1.5**—McCallum, W. B. The cultivation of guayule. *India Rubber World* 105, No. 1, 1941 (33-36). C.A. 35 (8013).

# FERTILIZERS AND GENERAL AGRONOMY

- 633.913.31-1.5—Brandes, E. W.** Go ahead, guayule! *Agric. in Americas* 2, 1942 (83-86).
- 633.913.31-1.5—West, A. B.** Rubber from the desert. *Reclam. Era* 32, 1942 (64-65).
- 633.913.31-1.5—Blaney, H. F.** Rubber from guayule. *Agric. Engng.* 24, 1943 (194-196).
- 633.913.31-1.67—Smith, G. E. P.** The production of guayule rubber under irrigation. *Agric. Engng.* 23, 1942 (312-324).
- 633.913.31-1.811—Bonner, J.** Effect of varying nutritional treatments on growth and rubber accumulation in guayule. *Bot. Gaz.* 105, 1944 (352-364). C.A. 38 (3319). VII, 4
- 633.913.32 : 546.65 : 539.16—Drobkov, A. A.** Effect of radioactive elements and rare earths upon yield and rubber content of kok-saghyz. *C.R. Acad. Sci. (U.S.S.R.)* 32, 1941 (667-668). [E.] VI, 3
- 633.913.32 : 581.192—Mashtakov, S. M.; Bel'chikova, N. P.; Leonova, M. I.** Flowering and non-flowering plants of kok-saghyz (*Taraxacum kok-saghyz* Rod.) and their industrial productivity. *C.R. Acad. Sci. (U.S.S.R.)* 28, 1940 (264-266). C.A. 35 (7459). VI, 3
- 633.913.32 : 581.192—Borovik, S. A.; Bergmann, G. G.; Borovik-Romanova, T. F.** Data on trace elements contained in kok-saghyz. *C.R. Acad. Sci. (U.S.S.R.)* 40, 1943 (329-330). [E.]
- 633.913.32-1.4—Gerasimov, I. P.; Lupinovich, I. G.** "Zaimische" soils of western Siberia and their utilization for kok-saghyz. *Pedology* No. 2, 1942 (7-25). [R.] VI, 2
- 633.913.32-1.5—Mynbaev, K.** Method of improved cultivation of *Taraxacum kok-saghyz*. *Sovet. Agron.* No. 11-12, 1940 (63-68). Hort. Abs. 13 (177). VII, 2
- 633.913.32-1.5—Kahn, E.** The rubber-containing plant of the temperate zone: kok-saghyz. *ForschDienst.* 12, 1941 (537-542). [G.]
- 633.913.32-1.5—Lyssenko, T. D.** A good stand of kok-saghyz seedlings as a sign of a large crop. *Dokl. Akad. S.-Kh. Nauk* No. 8, 1941 (3-7). Biol. Abs. 16 (1873).
- 633.913.32-1.5—Zasjadnikov, T.** Spring sowing of kok-saghyz. *Sotsial. Sel'sk. Khoz.* No. 4, 1941 (70-75). Hort. Abs. 12 (163). [R.] VI, 1
- 633.913.32-1.5—Brandes, E. W.** Rubber from the Russian dandelion. *Agric. in Americas* 2, 1942 (127-131).
- 633.913.32-1.5—Lenin Agricultural Academy.** Agrotechnique of kok-saghyz. *Sel'khozgiz, Moscow* 1942, pp. 71. [R.]
- 633.913.32-1.547.1—Lyssenko, T. D.** Good germination of kok-saghyz ensures a good yield. *Varovratsia* No. 3, (36), 1941 (3-11). Hort. Abs. 12 (163). [R.]
- 633.913.32-1.81 : 581.192—Neiman, G. B.** Effect of cultivation upon the quality of rubber in kok-saghyz roots. *Dokl. Akad. S.-Kh. Nauk* No. 9, 1941 (12-13). Hort. Abs. 12 (164). VI, 1
- 633.913.32-1.811—Dikusar, I. G.; Kalinkevich, A. F.** Mineral nutrition of kok-saghyz during various phases of its growth, as a factor influencing the metabolism and increasing the yield of seeds and rubber. *Tekhn. Kul.* No. 1, 1940 (9-19). C.A. 37 (3126). VII, 2
- 633.913.32-1.811—Sanotskaia, E. I.** The mineral nutrition of kok-saghyz. *Khim. Sotsial. Zemled.* No. 10, 1940 (23-28). [R.] IV, 6

# BIBLIOGRAPHY OF SOIL SCIENCE

- VII, 2    **633.913.32-1.811**—**Popov, A. S.** Conditions of mineral nutrition of kok-saghyz in the initial stages of growth and their influence on its later development. *Khim. Sotsial. Zemled.* 10, No. 4, 1941 (14-21). C.A. 37 (494).
- VI, 2    **633.913.32-1.811.2**—**Mikhailov, N. N.** Role of phosphates in the early phases of growth and development of kok-saghyz. *C.R. Acad. Sci. (U.S.S.R.)* 32, 1941 (664-666). [E.]
- VII, 2    **633.913.32-1.816.3**—**Kalinkevich, A. F.** The application of fertilizers to the rows in (kok-saghyz) plantations. *Vest. S.-Kh. Nauk, Agrotekh.* No. 3, 1940 (72-81). Hort. Abs. 13 (177).
- V, 2    **633.913.32-1.821.1**—**Mikhailov, N. N.** The effect of soil humus on the yield of kok-saghyz roots. *Dokl. Akad. S.-Kh. Nauk* No. 7, 1941 (41-44). [R.]
- VI, 2    **633.913.36-1.811**—**Klechetov, A. N.** Particular features in the biology of tan-saghyz, a rubber-bearing plant. *C.R. Acad. Sci. (U.S.S.R.)* 35, 1942 (288-292). [E.]
- V, 4    **633.913.37** **Bulletin of the Imperial Institute.** Chrysol rubber in the United States. *Bull. Imp. Inst.* 40, 1942 (13-14).
- 633.913.37** **Science.** Wild rubber on wastelands in the West. *Science* 95, No. 2457, 1942, Suppl. 46.
- 633.913.37-1.5** **Doten, S. B.** Rubber from rabbit brush (*Chrysothamnus nauseosus*). *New Agric. Expt. Sta. Bull.* 157, 1942, pp. 22. E.S.R. 87 (227).
- 633.913.43** **Symontowne, R.** *Cryptostegia* research in Haiti. *India Rubber World* Nos. 2, 3, 1943. *Trop. Agric. Trin.* 20, 1943 (195-197).

## 633.95 SAP PLANTS

- 633.956-1.5** **Greenway, P. J.** Empire production of drugs. II. Camphor. *E. Afric. Agric. J.* 7, 1941 (20-23).

## 634 ORCHARDS. FRUIT

- 634-1.4** **Gourley, J. H.** Soil studies with orchard fruits. *Proc. Amer. Pomol. Soc.* 56, 1941 (53-64). Biol. Abs. 16 (1233).
- IV, 2    **634-1.4 : 541.134.5** **Morita, S.** The oxidation-reduction potential of soils. III. Seasonal variation of the oxidation-reduction potential of orchard and tea-garden soils. *J. Sci. Soil Japan* 14, 1940 (411-426). C.A. 34 (7509).
- IV, 1    **634-1.415.1** **Lijftogt, G.** Fruit-growing and soil acidity. *Fruittelt* 30, 1940 (17-21). Hort. Abs. 10 (222). [Du.]
- V, 1    **634-1.415.1** **Haas, A. R. C. ; Compton, O. C.** The pH of irrigated orchard soils. *Soil Sci.* 52, 1941 (309-333).
- V, 1    **634-1.415.7** **Hildebrandt, B.** Fruit-growing on oak-thornbeam soils. *Deut. Obstb.* No. 1, 1941, pp. 4. *ForschDienst.* 11 (102).
- VII, 4    **634-1.416 : 551.41** **Meier, K.** Results of investigations on soils used for the growing of fruit trees in the Gränichen region, Mt. Aargau. *Schweiz. Ztschr. Obst- u. Weinb.* 51, 1942 (489-497). C.A. 38 (3769).
- 634-1.417**—**White, J. W.** Maintenance of nitrogen and organic matter in orchard soils. *Pa. St. Hort. Assoc. News* 18, 1941 (103-107). Biol. Abs. 16 (1878).

# FERTILIZERS AND GENERAL AGRONOMY

- 634-1.421 Pearce, S. C.** The statistical interpretation of VII, 1  
vigour measurements of fruit trees. *J. Pomol.* 20, 1943 (111-115).
- 634-1.427.3 Boynton, D.** Progress toward a more scientific  
basis for orchard fertilization. *N.Y. St. Hort. Soc. Proc. Ann.*  
*Meetg.* (1942) 1942 (192-198). *R.A.M.* 21 (134).
- 634-1.427.3 Cullinan, F. P.; Batjer, L. P.** Nitrogen, phos-  
phorus, and potassium interrelationships in young peach and apple  
trees. *Soil Sci.* 55, 1943 (49-60).
- 634-1.432.2 Childers, N. F.; White, D. G.; Southwick,  
F. W.** The influence of excess water in the soil on transpiration and  
apparent photosynthesis of young apple trees. *Proc. Amer. Soc.*  
*Hort. Sci.* (1940) 38, 1941 (163-164). *E.S.R.* 86 (193).
- 634-1.432.2 Hendrickson, A. H.; Veihmeyer, F. J.** Readily VI, 2  
available soil moisture and sizes of fruits. *Proc. Amer. Soc. Hort.*  
*Sci.* (1942) 40, 1942 (13-18).
- 634-1.58 Kharlamov, V. P.** Soil fertility maintenance in IV, 2  
orchards. *Dokl. Akad. S.-Kh. Nauk* No. 11, 1940 (19-21) [R].
- 634-1.58 Pickett, B. S.** Progress of orchard soil treatment V, 3  
experiments at Iowa State College. *Trans. Iowa St. Hort. Soc.* 75,  
1940 (136-141). *Biol. Abs.* 16 (223).
- 634-1.58 Wallace, T.** The renovation of starved orchards by  
cultivation and manuring. *Occas. Pub. Sci. Hort.* 4, 1943 (55-56).  
*Hort. Abs.* 13 (95).
- 634-1.58 Palmer, E. F.; Van Haarlem, J. R.** Orchard soil VII, 2  
management. *Ontario Dept. Agric. Bull.* 437, 1944, pp. 45.
- 634-1.58-1.416.13 Bradt, O. A.; Dickson, G. H.** Some  
factors affecting the nitrate content of an orchard soil. *Sci. Agric.* 22,  
1941 (61-67).
- 634-1.584 Overley, F. L.; Morris, O. M.; Overholser, V, 1  
E. L.** Orchard cover crop studies. *Proc. Wash. St. Hort. Assoc.* 36,  
1940 (120-124). *E.S.R.* 85 (481).
- 634-1.584 Schrader, A. L.** Building up our orchard soils. V, 4  
*Mid. Agric. Soc. Farm Bur. Rept.* 25, 1940 (108-115). *Mid. St. Hort.*  
*Soc. Proc.* 43, 1941 (4-11). *E.S.R.* 86 (480).
- 634-1.584 Rogers, W. S.** Practical notes on cover cropping  
of orchards. *F. Malling Res. Sta. Ann. Rept.* (1940) 1941 (83-86).
- 634-1.584 Partridge, N. L.; Harrison, C. M.** Permanent  
grass cover for the orchard. *Mich. Agric. Expt. Sta. Quart. Bull.* 24,  
1942 (211-217).
- 634-1.584 Pennsylvania Agricultural Experiment Station.** VI, 2  
The orchard fertility problem during the war emergency. *Pa. Agric.*  
*Expt. Sta. Bull.* 431, 1942, pp. 12.
- 634-1.584 Burvill, G. H.; Teakle, L. J. H.; Jones, L. T.** VII, 2  
Soil moisture conservation in vineyards and orchards. Its relation  
to cultivation, cover crops, and weeds. *J. Dept. Agric. W. Aust.* 20,  
1943 (224-236).
- 634-1.584 Partridge, N. L.** A legume program for orchards  
on sandy soils. *Mich. Agric. Expt. Sta. Quart. Bull.* 25, 1943 (249-  
252). *Hort. Abs.* 13 (96).
- 634-1.61 Verner, L.; Woodbury, G. W.** Crops and cultural  
practices on former apple orchard land. *Idaho Agric. Expt. Sta.*  
*Bull.* 250, 1943, pp. 18. *E.S.R.* 89 (672).

# BIBLIOGRAPHY OF SOIL SCIENCE

- 634-1.613 Paul, M.** A plea for contour planting of fruit trees. *Tucuman Est. Expt. Agric. Circ.* 79, 1939, pp. 8. Hort. Abs. 10 (333).
- VII, 1 **634-1.613—Le Roux, J. C. ; Unkles, W.** Contour systems for orchards. *Farm. S. Africa* 18, 1943 (733-738, 746).
- 634-1.67—Fortier, S.** Orchard irrigation. *U.S.D.A. Farm. Bull.* 1518, 1940, pp. 27.
- 634-1.67—Rebour, H.** Optimum degree of moisture in fruit tree irrigation. *Fruits Primeurs* 10, 1940 (103-104). Hort. Abs. 10 (223). [F.]
- 634-1.67 Hendrickson, A. H. ; Velhmeyer, F. J.** Irrigation experiments with pears and apples. *Calif. Agric. Expt. Sta. Bull.* 667, 1942, pp. 43. Hort. Abs. 12 (135).
- 634-1.67—Savage, C. G.** Systems of orchard irrigation. *Agric. Gaz. N.S.W.* 53, 1942 (519-521).
- 634-1.67 Davison, J. R.** Some notes on fruit tree irrigation on the Murrumbidgee Irrigation Area. *Agric. Gaz. N.S.W.* 54, 1943 (411-414).
- 634-1.81 Fagan, F. N.** Some newer ideas on orchard fertility. *Amer. Fert.* 96, No. 3, 1942 (5-7, 22, 24).
- 634-1.81 Gourley, J. H.** Developments in orchard management practices during the past 75 years. *Proc. Ohio St. Hort. Soc.* 75, 1942 (135-150). C.A. 36 (4262).
- 634-1.81 : 581.192 Fudge, B. R. ; Fehmerling, G. B.** Some effects of soils and fertilizers on fruit composition. *Proc. Fla. St. Hort. Soc.* 53, 1940 (38-46). C.A. 34 (8149). C.A. 35 (1170).
- VI, 2 **634-1.811.2 Lilleland, O. ; Brown, J. G. ; Conrad, J. P.** Phosphate nutrition of fruit trees. III. Comparison of fruit-tree and field-crop responses on a phosphate-deficient soil. *Proc. Amer. Soc. Hort. Sci.* 40, 1942 (1-7). C.A. 36 (6734).
- IV, 5 **634-1.811.3 Wallace, T. ; Osmond, D. A.** A preliminary note on the comparative effects of sulphate of potash, muriate of potash and kainit on various fruit plants. *Long Ashton Agric. Hort. Res. Sta. Ann. Rept.* 1940 (13-18).
- IV, 6 **634-1.811.3—Lilleland, O. ; Brown, J. G.** Potassium nutrition of fruit trees. III. A survey of the potassium content of peach leaves from one hundred and thirty orchards in California. *Proc. Amer. Soc. Hort. Sci.* (1940) 38, 1941 (37-48). C.A. 35 (4538).
- V, 3 **634-1.816.2 Shleifel'd, S. A. ; Tsyshkalo, G. A.** Time of application of mineral fertilizers. *Sovet. Suldop.* No. 11-12, 1940 (29-31). [R.]
- 634-1.816.3 Wenk.** Is it profitable to manure fruit trees by means of soil injection? *Bad. Obst- u. Gartenb.* 36, No. 3, 1941 (22). *Ernahr. Pfl.* 37, 1941 (59). [G.]
- IV, 3 **634-1.821.1—Meier, K.** Manurial experiments with fruit trees. Parts 2-5. *Landw. Jahrb. Schweiz* 54, 1940 (884-902). [G.I.]
- V, 3 **634-1.84-1.816.2—Sergeenko, V. M.** Autumn addition of nitrogen in fruit orchards. *Sadovodstvo Ogor.* No. 9, 1940 (9-10). *Biol. Abs.* 16 (477).
- V, 6 **634-1.862—Sannikov, V. S.** The use of liquid manure for fruit trees trained horizontally. *Sady i Ogorody* No. 3, 1941 (41). Hort. Abs. 12 (135).
- V, 3 **634-1.878—Schulz, F.** Manurial experiments with peat composts in fruit culture. *Landw. Jahrb.* 91, 1941 (441-448). [G.]

# FERTILIZERS AND GENERAL AGRONOMY

- 634-1.878—Sudds, R. H. ; Brown, D. S.** The effect of peat moss on the first two season's growth of apple and peach trees set in 1939 in West Virginia (preliminary report). *Proc. Amer. Soc. Hort. Sci.* 40, 1942 (54). VI, 2
- 634-2.19—Dippenaar, B. J.** Diseases of fruit trees caused by leaf-rust, manganese and zinc deficiencies, and their joint control. *S. Afric. J. Sci.* 37, 1941 (136-155). R.A.M. 20 (368). IV, 3
- 634-2.19—Meier, K.** Chlorosis of fruit trees, vines and horticultural plants. *Schweiz. Ztschr. Obst- u. Weinb.* 51, 1942 (357-361). C.A. 37 (2504).
- 634-2.19: 546.47 Agricultural Gazette of New South Wales.** Zinc deficiency of fruit trees. *Agric. Gaz. N.S.W.* 55, 1944 (290-292). VII, 4
- 634-2.19: 546.47 Kemp, H. K. ; Beare, J. A.** Little leaf in deciduous fruit trees and vines. *J. Dept. Agric. S. Aust.* 47, 1944 (470-479). VII, 4
- 634-2.19: 546.711 Wallace, T. ; Jones, J. O.** The control of manganese deficiency in fruit trees. *Long Ashton Agric. Hort. Res. Sta. Ann. Rept.* 1942 (18-23). VI, 4
- 634-2.19-1.811.3 Meier, K.** Manurial experiments with fruit trees. 6. Signs of potash deficiency and the effect of potash manuring on potash-deficient soil. *Landw. Jahrb. Schweiz* 54, 1940 (944-974). [G.f.] IV, 4
- 634-2.19-1.811.3 Reuther, W. ; Boynton, D.** Variations in potassium content of foliage from certain New York orchards. *Proc. Amer. Soc. Hort. Sci.* (1939) 37, 1940 (32-38). B.C.A.B. III, 1943 (203). VII, 1
- 634-2.19-1.811.6—Wallace, T.** Magnesium deficiency of fruit trees: the comparative base status of the leaves of apple trees and of gooseberry and black currant bushes receiving various manurial treatments under conditions of magnesium deficiency. *J. Pomol.* 18, 1940 (261-274). IV, 1
- 634-2.951.22—Schlenz, P.** What is the action of carbon disulphide against soil sickness in fruit culture? *Deut. Obstb.* 1940 (230). *ForschDienst.* 11 (62). [G.] IV, 6
- 634.1-1.81—Kharlamov, V. P.** Manuring of young pome fruit orchards. *Dokl. Akad. S.-Kh. Nauk* No. 10, 1941 (17-20). [R.] V, 2
- 634.11: 546.27—Bryden, J. D.** Effect of borax on green colour in Granny Smith apples. *Agric. Gaz. N.S.W.* 51, 1940 (525-526). *Hort. Abs.* 11 (14). IV, 5
- 634.11: 546.27—Batjer, L. P. ; Haller, M. H.** Fruit maturity and growth of apple trees as affected by boron content (preliminary report). *Proc. Amer. Soc. Hort. Sci.* 40, 1942 (29-30). R.A.M. 21 (529). C.A. 36 (6730).
- 634.11: 546.27—Phillips, W. R. ; Johnston, F. B.** The effect of boron applications on the subsequent storage and physiological behaviour of McIntosh apples. *Sci. Agric.* 23, 1943 (451-460).
- 634.11-1.4—Walsh, T. ; Clarke, E. J.** Characteristics of some Irish orchard soils in relation to apple tree growth. *Irish J. Dept. Agric.* 40, 1943 (61-122). VII, 1
- 634.11-1.4: 581.144.2—Fittinger, G. A.** Soils and soil treatments affect the morphology of French crab roots. *Proc. Amer. Soc. Hort. Sci.* (1940) 38, 1941 (305-310). *Hort. Abs.* 11 (182).

# BIBLIOGRAPHY OF SOIL SCIENCE

- V, 6 - **634.11-1.416.4**—**Reuther, W.** Studies concerning the supply of available potassium in certain New York orchard soils. *Cornell Agric. Expt. Sta. Mem.* 241, 1941, pp. 51. Biol. Abs. 16 (1432).
- V, 1 **634.11-1.416.7**: **581.192** **Zaik, B.** Calcium ions in soils; their influence on apple cultivation. *Rev. Fac. Cienc. Quím. La Plata* 15, 1940 (263-266). B.C.A.B. III, 1941 (226).
- VII, 1 **634.11-1.427.3**—**Frear, D. E. H.**; **Anthony, R. D.** The influence of date of sampling on the value of leaf weights and chemical analyses in nutrition experiments with apple trees. *Proc. Amer. Soc. Hort. Sci.* 42, 1943 (115-122).
- VI, 2 **634.11-1.432**—**White, D. G.**; **Childers, N. F.** The effect of the ground water table on apparent photosynthesis, transpiration, and growth of Stayman Winesap apple trees during the growing season of 1941. *Proc. Amer. Soc. Hort. Sci.* 40, 1942 (71-72).
- V, 2 **634.11-1.433.1**—**Heinicke, A. J.**; **Boynton, D.** The response of McIntosh apple trees to improved sub-soil aeration. *Proc. Amer. Soc. Hort. Sci.* (1940) 38, 1941 (27-31). E.S.R. 86 (44).
- 634.11-1.5**—**Magness, J. R.** Establishing and managing young apple orchards. *U.S.D.A. Farm Bull.* 1897, 1942, pp. 29.
- 634.11-1.5**—**Upshall, W. H.** Establishing the young orchard. *Ontario Dept. Agric. Bull.* 433, 1943, pp. 18.
- 634.11-1.544.7** **Beach, F. H.** Apple production under the mulch system. *Minn. Hort.* 69, 1941 (3-4, 25, 37). Hort. Abs. 11 (186).
- VII, 1 **634.11-1.544.7**—**Shaw, J. K.** Hay mulches in apple orchards. *Proc. Amer. Soc. Hort. Sci.* 42, 1943 (30-32).
- IV, 2 **634.11-1.81**—**Kharlamov, V. P.** Manuring fruiting apple trees. *Dokl. Akad. S.-Kh. Nauk* No. 14, 1940 (18-21). [R]
- VII, 1 **634.11-1.81**—**Spivakovsky, N. A.** The effect of fertilizers on the rate of growth and the initiation of fruiting in the apple tree. *Vest. S.-Kh. Nauk. Plod. Yagodin. Kult.* No. 2, 1940 (22-40). Hort. Abs. 13 (95). [R]
- IV, 1 **634.11-1.81**—**Wallace, T.**; **Spinks, G. T.** A long-period field experiment on the manuring of apple trees. *J. Pomol.* 18, 1940 (182-192).
- 634.11-1.81** **Hoblyn, T. N.** Manurial trials with apple trees at East Mallory, 1920-39. *J. Pomol.* 18, 1941 (325-343).
- VII, 1 **634.11-1.81**—**Overholser, E. L.**; **Overley, F. L.**; **Wilcox, J. C., et al.** Statistical analyses of the fertilizer data from the Von Osten apple orchard. *Proc. Amer. Soc. Hort. Sci.* 41, 1942 (19-22). B.C.A.B. III, 1943 (168).
- 634.11-1.81**: **581.192** **St. John, J. L.**; **Overholser, E. L.**; **Overley, F. L.** Effect of orchard fertilizer applications on the composition of apples. *Plant Physiol.* 17, 1942 (435-446).
- VI, 4 **634.11-1.811**—**Batjer, L. P.**; **Baynes, W. C.**; **Regeimbai, L. O.** Interaction of nitrogen, potassium, and phosphorus on growth of young apple trees in sand culture. *Proc. Amer. Soc. Hort. Sci.* (1939) 37, 1940 (43). B.C.A.B. III, 1943 (168).
- 634.11-1.811**—**Waltman, C. S.** The effect of nitrogen and phosphorus on the growth of apple and peach trees in sand culture. *Ky. Agric. Expt. Sta. Bull.* 410, 1940 (489-549). Hort. Abs. 12 (83).
- 634.11-1.811**—**Davis, M. B.**; **Hill, H.** Apple nutrition. *Canada Dept. Agric. Tech. Bull.* 32 (Pub. 714), 1941, pp. 32.

# FERTILIZERS AND GENERAL AGRONOMY

- 634.11-1.811 - Latimer, L. P.; Percival, G. P. Effect of fertilizing elements on apples. *N.H. Agric. Expt. Sta. Bull.* 345, 1942 (41-42). E.S.R. 89 (312). VII, 1
- 634.11-1.811.1- Magness, J. R. Supplying nitrogen to the apple tree. *Mass. Fruit Grow. Assoc. Rept.* 46, 1940 (130-136). C.A. 34 (5990). IV, 1
- 634.11-1.811.1-1.436 Batjer, L. P.; Magness, J. R.; Regeimbal, L. O. The effect of root temperature on growth and nitrogen intake of apple trees. *Proc. Amer. Soc. Hort. Sci.* (1939) 37, 1940 (11-18). Biol. Abs. 15 (294).
- 634.11-1.84 Harley, C. P.; Lindner, R. C. Apple tree responses to soil management practices. *Proc. Wash. St. Hort. Assoc.* (1942) 38, 1943 (63-68). Hort. Abs. 13 (95). VII, 1
- 634.11-1.84 : 581.192 Lutman, B. F. Some effects of nitrogen on young apple trees. *Pl. Agric. Expt. Sta. Bull.* 488, 1942, pp. 35. E.S.R. 88 (31).
- 634.11-1.841.1 - Harley, C. P.; Lindner, R. C. Response of devitalized apple trees in quack-grass sod to ammonium sulphate. (Preliminary report.) *Proc. Amer. Soc. Hort. Sci.* (1941) 39, 1941 (23-24). Herb. Abs. 12 (225). VI, 3
- 634.11-2.19 Brown, D. S. Deficiency symptoms of apples and peaches. *Trans. Ill. St. Hort. Soc.* (1941) 75, 1942 (138-143). C.A. 36 (5498).
- 634.11-2.19 : 546.27 Burrell, A. B. Boron problems of apple orchards. *Mass. Fruit Grow. Assoc. Rept.* 46, 1940 (137-140). E.S.R. 83 (508). V, 1
- 634.11-2.19 : 546.27 Burrell, A. B. Boron deficiency of apples. *Proc. Amer. Soc. Hort. Sci.* (1939) 37, 1940 (52). B.C.A.B. III, 1943 (169). VI, 4
- 634.11-2.19 : 546.27 Burrell, A. B.; Lewis, F. H. The boron deficiency disease of apple. *Phytopath.* 30, 1940 (3).
- 634.11-2.19 : 546.27 Meier, K. A nutrient deficiency study of various orchard fruits. *Schweiz. Ztschr. Obst- u. Weinb.* 49, 1940 (79-92). Hort. Abs. 10 (236). [G.]
- 634.11-2.19 : 546.27 Ekstrand, H. Experiments with borax against internal cork of apples. *Fäxtskvaldsnotiser* No. 1, 1941 (6-11). [Sw.] IV, 5
- 634.11-2.19 : 546.27 Maler, W. Bitter pit and boron deficiency diseases in apples. *Gartenbauwiss.* 15, 1941 (427-452). R.A.M. 20 (369). [G.]
- 634.11-2.19 : 546.27 Heinicke, A. J.; Reuther, W.; Cain, J. C. Influence of boron application on pre-harvest drop of McIntosh apples. *Proc. Amer. Soc. Hort. Sci.* 40, 1942 (31-34). R.A.M. 21 (529). VI, 2
- 634.11-2.19 : 546.27 Latimer, L. P. The effects of spray applications and heavy soil applications of borax on apple trees and fruits. *J. N.H. Hort. Soc.* 6, No. 1, 1942 (66-79). E.S.R. 87 (671). VI, 2
- 634.11-2.19 : 546.27 Magness, J. R. Control of internal cork by boron application. *E. Fruit Grow.* 5, No. 1, 1942 (5, 14, 19). C.A. 36 (3606). VI, 3
- 634.11-2.19 : 546.47 Husz, B. The rosette disease of apple trees in Hungary. *Bull. Roy. Hung. Hort. Coll.* 1 (n.s.), 1940 (11-37). Hort. Abs. 10 (340). [H.e.] IV, 3



# BIBLIOGRAPHY OF SOIL SCIENCE

- V, 1 634.11-2.19 : 551.58—Latimer, L. P. Relation of weather to prevalence of internal cork in apples. *Proc. Amer. Soc. Hort. Sci.* (1940) 38, 1941 (63-69). R.A.M. 20 (474).
- IV, 2 634.11-2.19-1.811.1—Hoffman, M. B. The pre-harvest drop of mature McIntosh apples as influenced by applications of nitrogen-carrying fertilizers. *Proc. Amer. Soc. Hort. Sci.* (1939) 37, 1940 (438-442). E.S.R. 83 (629). C.A. 34 (7514). Hort. Abs. 10 (218). Biol. Abs. 14 (1337).
- IV, 3 634.11-2.19-1.811.1—Southwick, L. The McIntosh drop. *Mass. Agric. Expt. Sta. Bull.* 372, 1940, pp. 19. E.S.R. 84 (51).
- IV, 2 634.11-2.19-1.811.1—Southwick, L. Spur nitrogen and pre-harvest McIntosh drop. *Proc. Amer. Soc. Hort. Sci.* (1939) 37, 1940 (435-437). E.S.R. 83 (629). C.A. 34 (7340).
- V, 1 634.11-2.19-1.811.1—Smock, R. M. Studies on bitter pit of the apple. *Cornell Agric. Expt. Sta. Mem.* 234, 1941, pp. 45.
- VI, 2 634.11-2.19-1.811.3—Burrell, A. B.; Cain, J. C. A response of apple trees to potash in the Champlain Valley of New York. *Proc. Amer. Soc. Hort. Sci.* (1940) 38, 1941 (1-7). C.A. 35 (4538).
- VI, 2 634.11-2.19-1.811.3—Burrell, A. B.; Cain, J. C.; Brinkerhoff, L. A. Response of apple trees to potash in the Champlain Valley. II. A third-year growth response and a first-year reduction in leaf scorch. *Proc. Amer. Soc. Hort. Sci.* 40, 1942 (8-12). R.A.M. 21 (528). C.A. 36 (7212).
- VII, 1 634.11-2.19-1.811.3—Burrell, A. B.; Boynton, D. Response of apple trees to potash in the Champlain Valley. III. *Proc. Amer. Soc. Hort. Sci.* 42, 1943 (61-64).
- VII, 1 634.11-2.19-1.811.6—Kidson, E. B. An ash skeleton method for the diagnosis of magnesium and potassium deficiencies in apple leaves and for the determination of their distribution in the leaf. *N.Z. J. Sci. Tech.* 24, 1942 (140B-145B).
- VII, 1 634.11-2.19-1.811.6—Boynton, D. Magnesium-deficiency—a newly recognized orchard trouble. *Farm Res.* 9, No. 2, 1943 (2). R.A.M. 22 (437).
- VII, 1 634.11-2.19-1.811.6—Boynton D.; Cain, J. C.; Van Geluwe, J. Incipient magnesium deficiency in some New York apple orchards. *Proc. Amer. Soc. Hort. Sci.* 42, 1943 (95-100).
- VII, 2 634.11-2.19-1.811.6—Kidson, E. B.; Askew, H. O.; Chittenden, E. The value of magnesium compounds for the control of magnesium deficiency of apple-trees. *N.Z. J. Sci. Tech.* 25A, 1943 (31-42).
- VII, 1 634.11-2.19-1.811.6—Southwick, L. Magnesium deficiency in Massachusetts apple orchards. *Proc. Amer. Soc. Hort. Sci.* 42, 1943 (85-94).
- V, 4 634.13-1.415.1—Kawasima, R.; Suyama, G. The reaction and lime status of Japanese pear-orchard soils. *J. Sci. Soil Japan* 14, 1940 (345-351). C.A. 34 (6747).
- V, 4 634.13-1.432.2—Hendrickson, A. H.; Velhmeyer, F. J. Some factors affecting the rate of growth of pears. *Proc. Amer. Soc. Hort. Sci.* (1941) 39, 1941 (1-7).
- 634.13-1.67—Aldrich, W. W.; Lewis, M. R.; Work, R. A., et al. Anjou pear responses to irrigation in a clay adobe soil. *Oreg. Agric. Expt. Sta. Bull.* 374, 1940, pp. 100.

# FERTILIZERS AND GENERAL AGRONOMY

- 634.13-1.84—**Degman, E. S.** Nitrogen fertilizer experiments with Anjou pears on clay adobe soils. *Oreg. St. Hort. Soc. Proc. Ann. Meets.* 32, 1940 (79-83). C.A. 36 (3608). VI, 3
- 634.13-2.19 : 546.27—**Kienholz, J. R.** Boron deficiency in pear trees. *Phytopath.* 32, 1942 (1082-1086). Biol. Abs. 17 (1092).
- 634.13-2.19-1.811.2—**Bryant, L. R. ; Gardner, R.** Phosphorus deficiency in pears. *Proc. Amer. Soc. Hort. Sci.* 42, 1943 (101-103). VII, 1
- 634.21-2.19 : 546.27—**Fitzpatrick, R. E. ; Woodbridge, C. G.** Boron deficiency in apricots. *Sci. Agric.* 22, 1941 (271-273). V, 2
- 634.22-1.5—**Alkman, J. M. ; Brewer, H. E.** The response of the plum grown under hillculture conditions to modifications in cultural treatment. *Bull. Ecol. Soc. Amer.* 20, No. 4, 1939 (26-27). *Iowa St. Coll. J. Sci.* 14, 1940 (385-391). E.S.R. 83 (196).
- 634.22-1.67—**Bowman, F. T. ; Davison, J. R.** Prunes at Yenda. Results of irrigation and soil management investigations. *Agric. Gaz. N.S.W.* 52, 53, 1941 (543-544, 585-588, 27-28, 48). Hort. Abs. 12 (83).
- 634.22-1.67 : 581.192—**Grebinsky, S. O.** The effect of irrigation, climate, fertilizers and other factors on the chemical composition of plums. *Biokhim. Kul'tur. Rast.* 7, 1940 (189-192). C.A. 35 (2925). IV, 5
- 634.22-1.811.3—**Boynton, D. ; Reuther, W. ; Cain, J. C.** Leaf analysis and apparent response to potassium in some prune and apple orchards. Preliminary report. *Proc. Amer. Soc. Hort. Sci.* (1940) 38, 1941 (17-20). C.A. 35 (4538).
- 634.22-1.811.3—**McCollam, M. E.** Prune trees need plenty of potash. *Better Crops with Plant Food* 26, No. 2, 1942 (15-18, 38-40). R.A.M. 21 (461).
- 634.23-1.5—**Bryant, L. R. ; Gardner, R.** Cultural factors affecting sour cherry production in Colorado. *Colo. Agric. Expt. Sta. Bull.* 471, 1942, pp. 19. E.S.R. 87 (519).
- 634.23-2.19 : 546.711—**Duggan, J. B.** A promising attempt to cure chlorosis, due to manganese deficiency, in a commercial cherry orchard. *J. Pomol.* 20, 1943 (69-79). VII, 1
- 634.25-1.453 : 546.19—**Lindner, R. C.** Arsenic injury of peach trees. *Proc. Amer. Soc. Hort. Sci.* 42, 1943 (275-279). VII, 1
- 634.25-1.58—**Anthony, R. D. ; Dunbar, C. O.** Some new methods of soil management in peach orchards. *Pa. St. Hort. Assoc. News* 18, 1941 (107-113). Biol. Abs. 16 (1432). V, 6
- 634.25-1.58—**Palmer, R. C. ; Britton, J. E. ; Fisher, D. V.** Soil maintenance and pruning methods for peaches and apricots. *Canada Dept. Agric. Tech. Bull.* 34 (Pub. 721), 1941, pp. 25.
- 634.25-1.584—**Bregger, J. T.** New conservation practices replace the old in the peach orchard. *Soil Conservation* 6, 1940 (161-164).
- 634.25-1.584-1.544.7—**Judkins, W. P. ; Rollins, H. A.** The effect of sod, cultivation and mulch treatments on soil moisture, soil nitrates, and tree growth in a young peach orchard. *Proc. Amer. Soc. Hort. Sci.* 43, 1943 (7-10). Biol. Abs. 18 (1008). VII, 3
- 634.25-1.81—**Rawl, E. H.** Peach fertilizer demonstration results. *Proc. Amer. Soc. Hort. Sci.* (1938) 36, 1939 (85, 86). E.S.R. 84 (621). IV, 6

# BIBLIOGRAPHY OF SOIL SCIENCE

- IV, 2     **634.25-1.81**—Cole, G. E. Manuring peach trees for profit. *J. Dept. Agric. Victoria* 38, 1940 (420-423, 430).
- V, 2     **634.25-1.81**—**Fruit World**. Canning peach manurial experiment. *Fruit World Melbourne* 42, No. 5, 1941 (11-12). Hort. Abs. 11 (281).
- 634.25-1.81** Cooper, J. R. Effect of commercial fertilizers on performance of peach trees. *Ark. Agric. Expt. Sta. Bull.* 429, 1943, pp. 46. Biol. Abs. 17 (1538).
- VI, 4     **634.25-1.81**—Lott, R. V. Fertilizing peaches for high quality fruit. *Amer. Fert.* 98, No. 12, 1943 (9-10, 26).
- VI, 3     **634.25-1.811.1** Williams, C. F. Nitrogen requirements of peach trees in the Sandhills during the summer. *Proc. Assoc. S. Agric. Workers* 42, 1941 (165-166). C.A. 35 (7616).
- 634.25-1.811.2** Lilleland, O.; Brown, J. G. The phosphate nutrition of fruit trees. IV. The phosphate content of peach leaves from 130 orchards in California and some factors which may influence it. *Proc. Amer. Soc. Hort. Sci.* 41, 1942 (1-10).
- IV, 6     **634.25-1.83:581.192** Waugh, J. G.; Cullinan, F. P. Nitrogen, phosphorus and potassium content of peach leaves as influenced by soil treatments. *Proc. Amer. Soc. Hort. Sci.* (1940) 38, 1941 (13-16). C.A. 35 (4539).
- IV, 1     **634.25-1.84** Lott, R. V. Some effects of nitrogen fertilizers on fruit and tree growth of the peach. *Trans. Ill. St. Hort. Soc.* (1939) 73, 1940 (223-231). C.A. 34 (5990).
- VI, 3     **634.25-1.84** McCue, C. A. Relative effect upon peach production of nitrogen derived from certain fertilizer sources. *Del. Agric. Expt. Sta. Bull.* 222, 1940, pp. 8. C.A. 36 (4262).
- 634.25-1.84:581.192** Williams, C. F. Food storage in the peach tree in relation to nitrogen fertilization. *N.C. Agric. Expt. Sta. Tech. Bull.* 67, 1941, pp. 19. E.S.R. 85 (194).
- 634.25-1.84:581.192** Lott, R. V. Effect of nitrate of soda on development of the Halcaven peach. *Ill. Agric. Expt. Sta. Bull.* 493, 1942 (321-384).
- VII, 1    **634.25-2.111-1.84** Higgins, B. B.; Walton, G. P.; Skinner, J. J. The effect of nitrogen fertilization on cold injury of peach trees. *Ga. Expt. Sta. Bull.* 226, 1943, pp. 27.
- 634.25-2.19:546.47** Blackmon, G. H.; Dickey, R. D. Zinc as a corrective for little-leaf of peach in Florida. *Proc. Fla. St. Hort. Soc.* 53, 1940 (46-49). Hort. Abs. 11 (192).
- IV, 2     **634.25-2.19:546.47** Dickey, R. D.; Blackmon, G. H. A preliminary report on little-leaf of the peach in Florida—a zinc deficiency. *Fla. Agric. Expt. Sta. Bull.* 344, 1940, pp. 19. E.S.R. 83 (357).
- 634.25-2.19:546.711** Kilpatrick, D. T. Manganese deficiency in peaches. *Agric. Gaz. N.S.W.* 52, 1941 (151-152).
- IV, 1     **634.25-2.3-1.84**—Poole, R. F. The relation of nitrogen fertilization of the peach to the control of *Bacterium pruni*. *Phytopath.* 30, 1940 (706).
- V, 5     **634.3:546.621**—Liebig, G. F., Jr.; Vanselow, A. P.; Chapman, H. D. Effects of aluminum on copper toxicity, as revealed by solution-culture and spectrographic studies of citrus. *Soil Sci.* 53, 1942 (341-351).

# FERTILIZERS AND GENERAL AGRONOMY

- 634.3 : 546.681 Liebig, G. F., Jr. ; Vanselow, A. P. ; Chapman, H. D.** Effects of gallium and indium on the growth of citrus plants in solution cultures. *Soil Sci.* 56, 1943 (173-185). VII, 1
- 634.3-1.4 : 581.192 Fudge, B. R.** The mineral composition of citrus juice as influenced by soil treatment. *Citrus Indust.* 22, 1941 (3, 6, 7, 14, 15). Biol. Abs. 16 (726). V, 4
- 634.3-1.415.1 Tait, W. L.** Soil-reaction tendencies in sandy citrus soils. *Proc. Fla. St. Hort. Soc.* 53, 1940 (16-22). C.A. 35 (1163). IV, 3
- 634.3-1.415.1 Jamison, V. C.** Practical considerations related to pH control in sandy soils planted to citrus. *Proc. Fla. St. Hort. Soc.* 55, 1942 (28-33). C.A. 37 (4511).
- 634.3-1.416.12 Sokoloff, V. P. ; Klotz, L. J.** Further nitrite gult found. *Citrus Leaves* 23, No. 8, 1943 (8-10). C.A. 38 (200).
- 634.3-1.427.3 Fudge, B. R.** Early diagnosis of magnesium deficiency in Florida citrus. *Citrus Indust.* 23, No. 9, 1942 (1, 4, 5, 14). Biol. Abs. 17 (249). E.S.R. 88 (197). VI, 2
- 634.3-1.427.3 Bathurst, A. C.** New method for estimating the fertilizer requirements of citrus trees. *Farm. S. Africa* 18, 1943 (323-327).
- 634.3-1.427.3 Chapman, H. D. ; Brown, S. M.** Leaf analysis reveals needs. New method for estimating the fertilizer needs of citrus trees. California experiments. *Citrus Leaves* 23, No. 11, 1943 (8-8, 22). C.A. 38 (1062). VII, 3
- 634.3-1.427.3 Bathurst, A. C.** Leaf analysis of citrus. Method of sampling citrus leaves for diagnosis purposes. *Farm. S. Africa* 19, 1944 (325-328, 329-330).
- 634.3-1.427.3 Chapman, H. D. ; Brown, S. M. ; Rayner, D. S.** Diagnosing the fertility needs of citrus trees. *Calif. Citrog.* 29, 1944 (182). C.A. 38 (4082). VII, 4
- 634.3-1.432.2 Richards, L. A. ; Huberty, M. R.** Moisture studies under citrus using tensiometers. *Proc. Amer. Soc. Hort. Sci.* (1941) 39, 1941 (73-79). Hort. Abs. 12 (46).
- 634.3-1.5 Benton, R. J.** Cultivation and irrigation of citrus. *Agric. Gaz. N.S.W.* 51, 1940 (573-574).
- 634.3-1.5 Hinckley, F.** Hinckley system of culture. *Calif. Citrog.* 25, 1940 (300). Hort. Abs. 11 (36).
- 634.3-1.5 Bathurst, A. C.** Fertility in citrus orchards. *Farm. S. Africa* 18, 1943 (679-681).
- 634.3-1.5 : 581.192 Bryan, O. C.** The quality of citrus fruit as affected by cultural practice. *Proc. Fla. St. Hort. Soc.* 53, 1940 (98-100). C.A. 35 (1172).
- 634.3-1.584 Schultz, E. F.** Cover crops, good and bad, for citrus plantations. *Rev. Indust. Agric. Tucumán* 29, 1939 (161-175). Hort. Abs. 10 (273). [Sp.] IV, 1
- 634.3-1.584 Baeyertz, F. P.** Orchard cover crops: a study of the cost and yield of several varieties. *Calif. Citrog.* 25, 1940 (400, 401, 407). E.S.R. 84 (332).
- 634.3-1.67 Taylor, C. A.** Irrigation problems in citrus orchards. *U.S.D.A. Farm. Bull.* 1876, 1941, pp. 34. E.S.R. 85 (483).
- 634.3-1.81 Chernavin, S. ; Tadeoslan, P. Ya.** Dosages of nitrogen and phosphorus in fertilizers and the yield of citrus. *Soviet Subtrop.* No. 2, 1940 (38-43). Biol. Abs. 15 (2259).

# BIBLIOGRAPHY OF SOIL SCIENCE

- VI, 1     **634.3-1.81—Finch, A. H.** Recent developments in citrus fertilization and orchard management in Arizona. *Ariz. Agric. Expt. Sta. Mimeo. Rept.* 41, 1941, pp. 12. Biol. Abs. 16 (1636).
- V, 6     **634.3-1.81—Moubray, J. M.** An interesting citrus farm in Rhodesia. *Calif. Citrog.* 27, 1942 (157, 181). Hort. Abs. 12 (155).
- 634.3-1.81 : 581.192—Chapman, H. D. ; Brown, S. M. ; Liebig, G. F., Jr.** Some effects on citrus fruit quality of nitrogen, phosphorus and potassium. *Calif. Citrog.* 28, 1943 (198, 211, 230, 246). Hort. Abs. 13 (189).
- 634.3-1.811.1—Chapman, H. D. ; Liebig, G. F., Jr.** Nitrate concentration and ion balance in relation to citrus nutrition. *Hilgardia* 13, 1940 (141-173). E.S.R. 84 (54).
- V, 2     **634.3-1.811.3—McCollam, M. E.** Potash and citrus crops. *Calif. Citrog.* 26, 1941 (253, 266). Hort. Abs. 11 (318).
- 634.3-1.811.3—Chapman, H. D. ; Brown, S. M.** Potash in relation to citrus nutrition. *Canning Age* 23, 1942 (581-582). R.A.M. 22 (63).
- 634.3-1.811.3—Chapman, H. D. ; Brown, S. M.** Potash in relation to citrus nutrition. *Soil Sci.* 55, 1943 (87-100).
- VI, 3     **634.3-1.811.6—Lawless, W. W.** Influences of magnesium upon yield. *Citrus Grow. Florida* 3, No. 40, 1941 (6-7). C.A. 36 (2362).
- VI, 3     **634.3-1.811.9 : 581.192—Coward, F. F. ; Stearns, C. R., Jr.** The effect of certain fertilizer practices on the time of maturity and composition of grapefruit and oranges. *Proc. Fla. St. Hort. Soc.* 54, 1941 (12-19). E.S.R. 88 (198).
- V, 2     **634.3-1.85—Voloshin, V. D.** The effectiveness of superphosphate and basic slag for citrus. *Soviet Subtrop.* No. 5, 1940 (43-45). Biol. Abs. 15 (2259).
- 634.3-1.86—Moore, E. G.** Fertilizing citrus with manure. *Calif. Citrog.* 27, 1942 (67, 88). Hort. Abs. 12 (101).
- V, 1     **634.3-2.111-1.81—Lawless, W. W. ; Camp, A. F.** Preliminary reports on varieties, fertilizers, and other factors as influencing cold resistance in citrus. *Proc. Fla. St. Hort. Soc.* 53, 1940 (120-125). Biol. Abs. 15 (1801).
- V, 1     **634.3-2.111-1.81—Semakin, K. S. ; Moroz, E. S.** The effect of-mineral fertilizers on the frost hardiness of citrus plants. *Soviet Subtrop.* No. 10, 1940 (19-21). Hort. Abs. 11 (215).
- VII, 2     **634.3-2.111-1.81—Semakin, K. S. ; Moroz, E. S.** The influence of mineral fertilizer on the frost resistance of citrus. *Expt. Botan.* No. 5, *Trudy Botan. Inst. Acad. Sci. (S.S.S.R.) Ser. IV*, 1941 (198-219). C.A. 38 (448).
- VII, 2     **634.3-2.111-1.811.9—Lawless, W. W.** Effect of freeze damage on citrus trees and fruit in relation to grove practices. *Proc. Fla. St. Hort. Soc.* 54, 1941 (67-74). C.A. 37 (4188).
- VII, 1     **634.3-2.112-1.4—Jamison, V. C.** The slow reversible drying of sandy surface soils beneath citrus trees in central Florida. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (36-41). Biol. Abs. 17 (1964).
- 634.3-2.19—Bain, F. M.** Mineral deficiencies in citrus. *Proc. Agric. Soc. Trin. Tob.* 41, 1941 (657-659, 661, 663, 665, 667, 669, 671, 673, 675). Hort. Abs. 12 (102).
- V, 4     **634.3-2.19 : 546.22—Chapman, H. D. ; Brown, S. M.** The effects of sulfur deficiency on citrus. *Hilgardia* 14, 1941 (183-196). Biol. Abs. 16 (993).

# FERTILIZERS AND GENERAL AGRONOMY

- 634.3-2.19 : 546.711—Parker, E. R. ; Chapman, H. D. ; Southwick, R. W.** Manganese deficiency of citrus in California. *Science* 91, 1940 (169-170). *Biol. Abs.* 15 (1201).
- 634.3-2.19 : 546.711—Levitt, E. C. ; Nicholson, R. I.** Manganese deficiency of citrus in New South Wales coastal districts. *Agric. Gaz. N.S.W.* 52, 1941 (283-286). IV, 5
- 634.3-2.19 : 546.711—Levitt, E. C. ; Nicholson, R. I.** Severe manganese deficiency of citrus. Symptoms described and control demonstrated. *Agric. Gaz. N.S.W.* 52, 1941 (477-479). V, 1
- 634.3-2.19 : 546.711—Parker, E. R. ; Southwick, R. W.** Manganese deficiency in citrus. *Proc. Amer. Soc. Hort. Sci.* (1941) 39, 1941 (51-58). *Hort. Abs.* 12 (47). V, 4
- 634.3-2.19-1.811.2—Chapman, H. D. ; Brown, S. M.** The effects of phosphorus deficiency in citrus. *Hilgardia* 14, 1941 (161-176). *Biol. Abs.* 16 (993). V, 4
- 634.3-2.19-1.811.4—Thomason, H. L.** New treatment for chlorosis appears to be effective. *Citrus Leaves* 19, No. 12, 1939 (12-13). *C.A.* 34 (7517). *R.A.M.* 20 (57). IV, 2
- 634.3-2.19-1.811.4 Haas, A. R. C.** Lime-induced chlorosis of citrus in relation to soil factors. *Plant Physiol.* 17, 1942 (27-51). V, 3
- 634.3-2.19-1.811.6—Oberholzer, P. C. J.** Suspected magnesium deficiency in citrus. *Farm. S. Africa* 16, 1941 (235-236). IV, 6
- 634.3-2.19-1.832—Jacob, A. ; Gottwick, R. ; Schulte, E.** A leaf injury of citrus produced by chloride. *Angew. Bot.* 22, 1940 (301-308). *C.A.* 35 (4899). IV, 6
- 634.3-2.4-1.811—Chapman, H. D. ; Brown, S. M.** Some fungal infections of citrus in relation to nutrition. *Soil Sci.* 54, 1942 (303-312).
- 634.31-1.421—Parker, E. R.** Adjustment of yields in an experiment with orange trees. *Proc. Amer. Soc. Hort. Sci.* 41, 1942 (23-33). VII, 1
- 634.31-1.436—Cameron, S. H.** The influence of soil temperature on the rate of transpiration of young orange trees. *Proc. Amer. Soc. Hort. Sci.* (1940) 38, 1941 (75-79). *E.S.R.* 86 (196). V, 3
- 634.31-1.81—Fairchild, R. E.** Are fertilizer practices cause of small sized fruit? *Calif. Citrus.* 25, 1940 (280). *Hort. Abs.* 11 (37). IV, 5
- 634.31-1.81—Neller, J. R. ; Forsee, W. T., Jr.** Fertilizer experiments in an orange grove in the eastern Everglades. *Proc. Fla. St. Hort. Soc.* 1941 (1-4). *Citrus Indust.* 22, No. 12, 1941 (6-7). *C.A.* 36 (4282). *E.S.R.* 86 (784).
- 634.31-1.81—Singh, L. ; Singh, B. ; Khan, A. A.** Citrus manuring. I. Fertilizer experiment with sweet orange (Malta) growing on rough lemon. *Indian J. Agric. Sci.* 11, 1941 (778-794). V, 3
- 634.31-1.81—Parker, E. R. ; Batchelor, L. D.** Effect of fertilizers on orange yields. *Calif. Agric. Expt. Sta. Bull.* 673, 1942, pp. 39. *Biol. Abs.* 17 (1284). VI, 3
- 634.31-1.811.9 : 577.16—Roy, W. R. ; Bahrt, G. M.** The effect of zinc, iron, manganese and magnesium, applied to frehched and bronzed orange groves, on the vitamin-C content of oranges. *Proc. Fla. St. Hort. Soc.* 53, 1940 (34-38). *C.A.* 35 (1168). IV, 3
- 634.31-1.83—Bahrt, G. M. ; Roy, W. R.** Progress report of the effects of no potassium and various sources and amounts of potassium on citrus. *Proc. Fla. St. Hort. Soc.* 53, 1940 (26-34). *C.A.* 35 (1169).

# BIBLIOGRAPHY OF SOIL SCIENCE

- IV, 2    **634.31-1.85**—**Chandler, A. L.** Phosphates increase orange sizes in Alta Loma Grove. *Citrus Leaves* 19, No. 1, 1939 (16-17). C.A. 34 (7515).
- V, 4    **634.323-1.5**—**Martin, W. E.** An evaluation of some of the factors affecting quality of grapefruit in commercial groves of the Salt River Valley. *Proc. Amer. Soc. Hort. Sci.* (1941) 39, 1941 (59-66). Hort. Abs. 12 (46).
- V, 4    **634.323-1.84**—**Hilgeman, R. H.** Nitrogen uptake by grapefruit trees in the Salt River Valley. *Proc. Amer. Soc. Hort. Sci.* (1941) 39, 1941 (119-124). Hort. Abs. 12 (45).
- VII, 1    **634.323-2.19 : 546.27** **Roy, W. R.** Studies of boron deficiency in grapefruit. *Citrus Indust.* Nos. 8, 9, 1943 (4-5, 5-8). C.A. 37 (6306).
- 633.323-2.19-1.811.6 : 581.192** **Cowart, F. F.** The effect of magnesium deficiency in grapefruit trees upon the composition of fruit. *Proc. Amer. Soc. Hort. Sci.* 40, 1942 (161-164). R.A.M. 21 (524).
- 634.38-1.81** **Ozawa, S. ; Tamura, Y.** The influence of continuous application of organic and inorganic manures upon the yield, root system of the mulberry tree, and the soil. I. *J. Sci. Soil Japan* 14, 1940 (723-734). [J.]
- 634.38-1.811.1** **Yamauchi, K.** The relations between soil character and the nitrogen utilization of the mulberry tree. *J. Sci. Soil Japan* 14, 1940 (493-502). C.A. 35 (552).
- VI, 3    **634.38-1.811.4** **Hukuda, S.** The effect of lime on the growth of the mulberry tree and the chemical composition of mulberry leaves. *J. Sci. Soil Japan* 15, 1941 (227-236). C.A. 35 (5237).
- 634.42-1.5** **Webber, H. J.** Extending guava production to California. *Proc. Amer. Soc. Hort. Sci.* 41, 1942 (228-233).
- 634.441-1.81**—**Roy, S. C.** Manuring of mango trees: the present position. *Indian Farm* 2, 1941 (575-578).
- 634.441-2.184**—**Sen, P. K.** Black-tip disease of the mango. *Indian J. Agric. Sci.* 13, 1943 (300-333).
- 634.441-2.19 : 546.47** **Lynch, S. J. ; Ruehle, G. D.** Little-leaf of mangos—a zinc deficiency. *Proc. Fla. St. Hort. Soc.* 53, 1940 (167-169). C.A. 35 (1173).
- 634.45-1.5**—**Gould, H. P.** The native persimmon. *U.S.D.A. Farm. Bull.* 685, rev. 1942, pp. 22. E.S.R. 87 (675).
- IV, 6    **634.461 : 581.144.2**—**Kunemann, J. H.** Lamtoro (*Leucaena glauca*). *Bergcultures* 15, 1941 (504-507). [Du.]
- 634.462-1.5** **Blanes, E.** The carob tree: uses of its fruit as fodder and industrially. *Eighth Int. Cong. Trop. Agric.* 1939, III-E, No. 67, pp. 12. [Sp.]
- 634.462-1.5**—**Loock, E. E. M.** The carob or locust tree (*Ceratonia siliqua* L.). *J. S. Afric. Forestry Assoc.* No. 4, 1940 (78-80). For. Abs. 2 (239).
- 634.471-1.5**—**Lindsay, W. R.** Mangosteen cultivation. *Proc. Eighth Amer. Sci. Cong.* 3, 1942 (263-265). Biol. Abs. 17 (1551).
- IV, 1    **634.5-1.432.2 : 581.144.2**—**Schuster, C. E. ; Stephenson, R. E.** Soil moisture, root distribution and aeration as factors in nut production in western Oregon. *Oreg. Agric. Expt. Sta. Bull.* 372, 1940, pp. 32.

# FERTILIZERS AND GENERAL AGRONOMY

- 634.5-1.466.1 Schuster, C. E.; Stephenson, R. E.; Evenden, W. Mycorrhizas of filbert and walnut trees in Oregon orchards. *Bot. Gaz.* 105, 1944 (388-391). VII, 4
- 634.51-2.19:546.27 Schuster, C. E.; Stephenson, R. E. Preliminary report on the use of boron on walnut trees (*Juglans regia* L.). *Oreg. St. Hort. Soc. Ann. Rept.* 35, 1943 (133-137). C.A. 38 (2435). VII, 4
- 634.51-2.19:546.711 Braucher, O. L.; Southwick, R. W. Correction of manganese-deficiency symptoms of walnut trees. *Proc. Amer. Soc. Hort. Sci.* (1941) 39, 1941 (133-136).
- 634.521:546.27 Blackmon, G. H. Boron in pecan nutrition. *Proc. Amer. Soc. Hort. Sci.* (1940) 38, 1941 (209-210). *Biol. Abs.* 15 (1803).
- 634.521-1.584 Blackmon, G. H. Nitrogen content of dormant pecan twigs. *Proc. Amer. Soc. Hort. Sci.* (1940) 38, 1941 (211-212). *Biol. Abs.* 15 (1803). V, 1
- 634.521-1.811 Alben, A. O.; Hammar, H. E. Fertilizing the pecan. *Tex. Pecan Grow. Assoc. Proc.* 19, 1939 (48-54). *Biol. Abs.* 14 (1197). IV, 1
- 634.521-1.811:581.192 Lewis, R. D.; Hunter, J. H. Changes in some mineral constituents of pecan nuts and their supporting shoots during development. *J. Agric. Res.* 68, 1944 (299-306). VII, 4
- 634.521-1.811.2 Alben, A. O.; Hammar, H. E. Phosphorus content of some south-western pecan soils and influence of phosphate fertilizers on pecan foliage. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (173-176). IV, 1
- 634.521-1.816.2 Hunter, J. H.; Lewis, R. D. Influence of fertilizer and time of its application on growth, yield and quality of pecans. *J. Amer. Soc. Agron.* 34, 1942 (175-187, 392).
- 634.521-2.19 Alben, A. O.; Hammar, H. E.; Sitton, B. G. Some nutrient deficiency symptoms of the pecan. *Proc. Amer. Soc. Hort. Sci.* 41, 1942 (53-60).
- 634.521-2.19:546.47 Alben, A. O.; Hammar, H. E. Progress report on soil applications of zinc sulphate in the control of rosette of pecan. *Tex. Pecan Grow. Assoc. Proc.* 21, 1941 (63-70). *Biol. Abs.* 17 (873). VI, 3
- 634.521-2.19:546.47 Gossard, A. G.; Parson, H. E. Duration of the effect of zinc sulfate treatment on large, badly rosetted pecan trees. *Proc. S.E. Pecan Grow. Assoc.* 35, 1941 (31, 33, 35, 36). *R.A.M.* 22 (45). C.A. 36 (4660). VI, 2
- 634.521-2.19:546.47 Moznette, G. F.; Nickels, C. B.; Pierce, W. C., et al. Insects and diseases of the pecan and their control. *U.S.D.I. Farm. Bull.* 1829, 1941, pp. 70.
- 634.55-1.5 Lanuza, E. A. The pili nut in the Bicol region. *Philipp. J. Agric.* 10, 1939 (21-33).
- 634.57-1.5 Sinclair, S. M. Notes on a trial planting of oyster nuts in the Mid-Melsetter district. *Rhod. Agric. J.* 39, 1942 (325, 332-333).
- 634.58-1.5 Gore, U. R. Cultural methods for growing peanuts. *Ga. Expt. Sta. Circ.* 131, 1941 pp. 4.
- 634.58-1.5 Gore, U. R. Culture and fertilizer studies with peanuts. *Ga. Expt. Sta. Bull.* 209, 1941, pp. 19.



# BIBLIOGRAPHY OF SOIL SCIENCE

- 634.58-1.5—Sellschop, J. Groundnut production. *Farm. S. Africa* 17, 1942 (651-654, 670).
- 634.58-1.5—Batten, E. T. Peanut production. *Va. Agric. Expt. Sta. Bull.* 348, 1943, pp. 15. E.S.R. 89 (440).
- 634.58-1.5—Beattie, W. R.; Beattie, J. H. Peanut growing. *U.S.D.A. Farm. Bull.* 1656, 1943, pp. 31. Herb. Abs. 14 (20).
- 634.58-1.5 : 633.15—Crocloni, A. The cultivation of ground nuts and the possibility of growing them in mixture with maize. *Ital. Agric.* 79, 1942 (151-157). [1.]
- 634.58-1.67—Unchev, N. D. The effect of irrigation and rain on yield and quality in *Arachis*. *Dokl. Akad. S.-Kh. Nauk* No. 10, 1941 (13-16). Hort. Abs. 12 (158). [R.]
- 634.58-1.81—Collins, E. R.; Morris, H. D. Soil fertility studies with peanuts. *N.C. Agric. Expt. Sta. Bull.* 330, 1941, pp. 23.
- IV, 6 634.58-1.811—Burkhart, L.; Page, N. R. Mineral nutrient extraction and distribution in the peanut plant. *J. Amer. Soc. Agron.* 33, 1941 (743-755).
- 634.58-1.811—Burkhart, L.; Collins, E. R. Mineral nutrients in peanut plant growth. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (272-280).
- VII, 3 634.58-1.811—Grizzard, A. L.; Strauss, J. L. Time and rate of nutrient absorption by peanuts. *Proc. Assoc. S. Agric. Workers* 43, 1942 (81-82). C.A. 37 (1820).
- VII, 2 634.58-1.811—Collins, E. R. Maintaining fertility when growing peanuts. *Better Crops with Plant Food* 27, No. 2, 1943 (6-10, 42-44). C.A. 37 (4186).
- IV, 6 634.61-1.81—Wilshaw, R. G. H. Results of a manural experiment on coconuts. *Malay. Agric. J.* 29, 1941 (145-151).
- 634.61-1.81—Wilshaw, R. G. H. Results of manural and cultivation experiments on coconuts. *Malay. Agric. J.* 29, 1941 (267-272).
- 634.61-1.81—Salgado, M. L. M. Recent experiments on the manuring of coconuts in Ceylon. *Young Ceylon, Coconut Ann.* 2, No. 4, 1942, pp. 5.
- V, 1 634.61-1.81 : 581.192—Child, R.; Salgado, M. L. M. The effect of manuring coconut palms on the oil and protein contents of the copra. *Trop. Agricul.* 97, 1941 (4-9).
- IV, 2 634.61-2.19—Bain, F. M. Report on the coconut growing areas of Jamaica. *Jamaica Dept. Sci. Agric. Bull.* 22, 1940, pp. 12.
- V, 2 634.61-2.19—Tropical Agriculturist. The premature fall of coconuts. *Trop. Agricul.* 96, 1941 (253-254). Hort. Abs. 11 (342).
- 634.62-1.81 : 581.192—Sinclair, W. B.; Bartholomew, E. T.; Bliss, D. E. Composition of dates as affected by soil fertilizer treatments. *Date Grow. Inst. Rept.* 18, 1941 (11-16). Biol. Abs. 16 (1435).
- VI, 2 634.62-2.19-1.432.2—Aldrich, W. W.; Moore, D. C. Relation of water supply by the date palm to water injury of the fruit. *Date Grow. Inst. Ann. Rept.* 17, 1940 (3-5). E.S.R. 87 (522).
- 634.62-2.19-1.432.2—Aldrich, W. W. Some effects of soil moisture deficiency upon Deglet Noor fruit. *Date Grow. Inst. Ann. Rept.* 19, 1942 (7-10). Biol. Abs. 17 (660).
- 634.63-1.84—Johnson, J. C. Olive fertilization. *Calif. Cultiv.* 90, 1943 (506). Biol. Abs. 18 (1288).

# FERTILIZERS AND GENERAL AGRONOMY

- 634.63-2.19:546.27**—Scott, C. E. ; Thomas, H. Earl ; **VII, 1**  
**Thomas, Harold E.** Boron deficiency in the olive. *Phytopath.* 33, 1943 (933-942).
- 634.651-1.5**—Wolfe, H. S. ; Lynch, S. J. Papaya culture in Florida. *Fla. Agric. Expt. Sta. Bull.* 350, 1940, pp. 35. Hort. Abs. 11 (325).
- 634.651-1.5**—Jones, W. W. ; Storey, W. B. ; Parris, G. K., et al. Papaya production in the Hawaiian Islands. *Hawaii Agric. Expt. Sta. Bull.* 87, 1941, pp. 64.
- 634.651-1.5**—Malayan Agricultural Journal. Papaya. *Malay. Agric. J.* 29, 1941 (194-199).
- 634.651-1.5**—Sanders, F. R. ; Robertson, J. K. Cultivation of papaw and production of papain. *E. Afric. Agric. J.* 9, 1944 (173-174).
- 634.653:016**—Condit, I. J. A bibliography on the avocado. *Univ. Calif., Riverside* 1939, pp. 293. (Mimeo.)
- 634.653:581.144.2**—Coit, J. E. Avocado tree root development. *Calif. Avocado Assoc. Yrbk.* 1940 (46-49). Biol. Abs. 15 (2260).
- 634.653:581.144.2**—Donnelly, M. Root distribution of young avocado trees on bench terraces. *Proc. Amer. Soc. Hort. Sci.* (1941) 39, 1941 (101-109).
- 634.653-1.4**—Popenoe, W. The avocado—a horticultural problem. *Trop. Agric. Trin.* 18, 1941 (3-7). Hort. Abs. 11 (42). **IV, 5**
- 634.653-1.4**—Rounds, M. B. Handling avocado soils. *Calif. Avocado Soc. Yrbk.* 1942 (69-70). Hort. Abs. 13 (126).
- 634.653-1.415.1**—Haas, A. R. C. The pH of soils in avocado orchards. *Calif. Avocado Soc. Yrbk.* 1941 (66-74). Biol. Abs. 16 (2084). **VI, 1**
- 634.653-1.432**—Smoyer, K. Avocado tree decline. *Calif. Avocado Assoc. Yrbk.* 1940 (50-51). Biol. Abs. 16 (250).
- 634.653-1.432.2**—Haas, A. R. C. Soil moisture range and the growth of young lemon and avocado plants. *Calif. Avocado Soc. Yrbk.* 1942 (87-91). Hort. Abs. 12 (104).
- 634.653-1.432.2**—Marsh, R. H. Moisture requirements of the avocado. *Calif. Avocado Soc. Yrbk.* 1942 (92-93). Hort. Abs. 12 (104). **V, 5**
- 634.653-1.433.2**—Haas, A. R. C. Importance of root aeration in avocado and citrus trees. *Calif. Avocado Assoc. Yrbk.* 1940 (77-84). C.A. 35 (3680).
- 634.653-1.433.2**—Hodgson, R. W. Observations on the history and status of the avocado tree decline and collapse problem in California. *Calif. Avocado Soc. Yrbk.* 1943 (27-29). Biol. Abs. 18 (1287). **VII, 4**
- 634.653-1.453-1.461**—Klotz, L. J. ; Sokoloff, V. P. The possible relationships of soil organisms to avocado tree decline and collapse. *Calif. Avocado Soc. Yrbk.* 1943 (30-33). C.A. 38 (3070).
- 634.653-1.5**—Davis, S. J. Avocado growing in the Redland District. *Proc. Fla. St. Hort. Soc.* 52, 1939 (71-73). Biol. Abs. 14 (1198).
- 634.653-1.584**—DeBard, A. S. Permanent cover versus cultivation. *Calif. Avocado Soc. Yrbk.* 1942 (75-76). Hort. Abs. 12 (104). **V, 5**

# BIBLIOGRAPHY OF SOIL SCIENCE

- V, 5      **634.653-1.584-** Marshburn, A. R. Permanent cover for avocado orchards. *Calif. Avocado Soc. Yrbk.* 1942 (77-78). Hort. Abs. 12 (104).
- IV, 3      **634.653-1.81** Wolfe, H. S.; Lynch, S. J. Fertilizer studies with avocados. *Proc. Fla. St. Hort. Soc.* 53, 1940 (147-149). C.A. 35 (1170).
- VII, 3      **634.653-1.811.1** Hodgson, R. W. Avocados require less fertilizer than citrus. *Citrus Leaves* 22, No. 11, 1942 (6). C.A. 37 (1003).
- 634.653-1.811.1** Hodgson, R. W. The nitrogen requirement of the avocado tree in California. *Calif. Avocado Soc. Yrbk.* 1942 (33-35). E.S.R. 89 (217).
- VII, 4      **634.653-1.811.1** Hansen, F. J. Nitrogen fertilization of avocados. *Calif. Avocado Soc. Yrbk.* 1943 (62-64). C.A. 38 (3070).
- 634.653-2.19** Haas, A. R. C. Avocado leaf symptoms characteristic of potassium, phosphate, manganese, and boron deficiencies in solution cultures. *Calif. Avocado Soc. Yrbk.* 1939 (103-109). Biol. Abs. 15 (136).
- 634.653-2.19:546.27** Haas, A. R. C. Boron content of avocado trees and soils. *Calif. Avocado Soc. Yrbk.* 1943 (41-52). Biol. Abs. 18 (1287).
- IV, 3      **634.653-2.19:546.47** Ruehle, G. D. Zinc deficiency of the avocado. *Proc. Fla. St. Hort. Soc.* 53, 1940 (150-152). C.A. 35 (1173).
- IV, 3      **634.653-2.19:546.56** Ruehle, G. D.; Lynch, S. J. Copper sulfate as a corrective for dieback, a new disease of the avocado. *Proc. Fla. St. Hort. Soc.* 53, 1940 (152-154). C.A. 35 (1172).
- VI, 3      **634.653-2.4-1.432.2** Wager, V. A. *Phytophthora cinnamomi* and wet soil in relation to the dying back of avocado trees. *Hilgardia* 14, 1942 (517-532). Biol. Abs. 17 (1298).
- 634.7-1.5** Ministry of Agriculture and Fisheries. Fruit production: bush fruits. *Mon. Agric. Bull.* 4, 1942, pp. 36.
- V, 3      **634.711-1.416** Atkinson, H. J.; Wright, L. E. Studies on some raspberry soils of British Columbia. *Sci. Agric.* 22, 1942 (287-297).
- 634.711-1.5** Darrow, G. M.; Waldo, G. F. Raspberry culture. *U.S.D.A. Farm. Bull.* 887, 1941, pp. 41.
- V, 2      **634.711-1.544.7-** Childs, W. H. Production, berry size, and growth of red raspberries as influenced by mulching. *Proc. Amer. Soc. Hort. Sci.* (1940) 38, 1941 (405-409). Biol. Abs. 15 (2081).
- VI, 2      **634.711-1.584** Woods, J. J. The effect of green crops and manual treatments in raspberries. *Sci. Agric.* 23, 1942 (247-250).
- VII, 2      **634.711-1.81** Collison, R. C.; Slate, G. L. Fertilizer responses of black raspberries in western New York in demonstrational and experimental layouts. *Proc. Amer. Soc. Hort. Sci.* 42, 1943 (463-466). Biol. Abs. 18 (369).
- VII, 4      **634.715** Meadly, G. R. W. The blackberry or bramble (*Rubus fruticosus* L.). *J. Dept. Agric. W. Aust.* 21, 1944 (17-28).
- 634.715-1.5** Darrow, G. M. Blackberry growing. *U.S.D.A. Farm. Bull.* 1399, 1942, pp. 18.
- 634.723-1.5** Amos, J.; Hatton, R. G.; Hoblyn, T. N. How to improve black currant plantations. *E. Malling Res. Sta. Ann. Rept.* (1941) 1942 (53-56).

# FERTILIZERS AND GENERAL AGRONOMY

- 634.723-1.81—Grainger, E. E.** The black currant in war time. *How to do them well.* *Fruit-Grower* 89, 1940 (217-218). Hort. Abs. 10 (228). IV, 1
- 634.73-1.4—Johnston, S.** The influence of various soils on the growth and productivity of the highbush blueberry. *Mich. Agric. Expt. Sta. Quart. Bull.* 24, 1942 (307-310). C.A. 36 (6726). Biol. Abs. 16 (2082). VI, 1
- 634.73-1.415.1—Stene, A. E.** Some observations on blueberry nutrition based on greenhouse culture. *Proc. Amer. Soc. Hort. Sci.* (1939) 37, 1940 (620-622). C.A. 34 (7515). IV, 2
- 634.73-1.415.1—Collison, R. C.** Making soils acid for blueberries. *N.Y. St. Agric. Expt. Sta. Quart. Bull.* 8, No. 2, 1942 (8, 18). C.A. 36 (3896). VI, 2
- 634.73-1.436—Bailey, J. S.; Jones, L. H.** The effect of soil temperature on the growth of cultivated blueberry bushes. *Proc. Amer. Soc. Hort. Sci.* (1940) 38, 1941 (462-464). Biol. Abs. 15 (1802). V, 1
- 634.73-1.5 Darrow, G. M.** Blueberries. *U.S.D.A. Leaflet* 201, 1940, pp. 8.
- 634.73-1.5 Slate, G. L.; Collison, R. C.** The blueberry in New York. *N.Y. St. Agric. Expt. Sta. Circ.* 189, 1940, pp. 26. E.S.R. 83 (340).
- 634.73-1.5 Beckwith, C. S.** Locating and preparing fields for the cultivated blueberry. *N.J. Agric. Expt. Sta. Circ.* 473, 1943, pp. 4.
- 634.73-1.5 Belzile, A.** The cultivation of the blueberry. *Forêt Québécoise* 5, 1943 (269-274). Biol. Abs. 18 (584).
- 634.73-1.5 Johnston, S.** Essentials of blueberry culture. *Mich. Agric. Expt. Sta. Circ.* 188, 1943, pp. 27. E.S.R. 89 (675).
- 634.73-1.5 Darrow, G. M.; Wilcox, R. B.; Beckwith, C. S.** Blueberry growing. *U.S.D.A. Farm Bull.* 1951, 1944, pp. 38.
- 634.73-1.544.7—Kramer, A.; Evinger, E. L.; Schrader, A. L.** Effect of mulches and fertilizers on yield and survival of the dryland and highbush blueberries. *Proc. Amer. Soc. Hort. Sci.* (1940) 38, 1941 (455-461). Hort. Abs. 11 (285).
- 634.73-1.544.7 Chandler, F. B.; Mason, I. C.** The effect of mulch on soil moisture, soil temperature and growth of blueberry plants. *Proc. Amer. Soc. Hort. Sci.* 40, 1942 (335-337). C.A. 36 (6725). VI, 2
- 634.73-1.544.7 Savage, E. F.; Darrow, G. M.** Growth response of blueberries under clean cultivation and various kinds of mulch materials. *Proc. Amer. Soc. Hort. Sci.* 40, 1942 (338-340).
- 634.73-1.81—Merrill, T. A.** Effects of soil treatments on the growth of the highbush blueberry. *J. Agric. Res.* 69, 1944 (9-20). VII, 4
- 634.73-1.811 Kramer, A.; Schrader, A. L.** Effect of nutrients, media, and growth substances on the growth of the Cabot variety of *Vaccinium corymbosum*. *J. Agric. Res.* 65, 1942 (313-328). VI, 2
- 634.73-1.816.2 Doehlert, C. A.** Dates for applying blueberry fertilizer. *Proc. Amer. Soc. Hort. Sci.* (1940) 38, 1941 (451-454). Biol. Abs. 15 (2082). V, 2
- 634.73-1.821.1 Bailey, J. S.** The effect of lime applications on the growth of cultivated blueberry plants. *Proc. Amer. Soc. Hort. Sci.* (1940) 38, 1941 (465-467). Biol. Abs. 15 (1802). V, 1

# BIBLIOGRAPHY OF SOIL SCIENCE

- VI, 2 634.73-1.84—Perlmutter, F.; Darrow, G. M. Effect of soil media, photoperiod and nitrogenous fertilizer on the growth of blueberry seedlings. *Proc. Amer. Soc. Hort. Sci.* 40, 1942 (341-346).
- VII, 2 634.73-1.86—Johnston, S. The influence of manure on the yield and size of fruit of the highbush blueberry. *Mich. Agric. Expt. Sta. Quart. Bull.* 25, 1943 (374-376). E.S.R. 89 (544).
- VII, 1 634.75 : 546.27—New Hampshire Agricultural Experiment Station. Borax on strawberries. *N.H. Agric. Expt. Sta. Bull.* 345, 1942 (49). E.S.R. 89 (315).
- VII, 2 634.75 : 546.27—Latimer, L. P. The response of strawberries to boron. *Proc. Amer. Soc. Hort. Sci.* 42, 1943 (441-443). E.S.R. 89 (675).
- 634.75-1.5—Loree, R. E. Results of strawberry plant spacing experiments. *Mich. Agric. Expt. Sta. Quart. Bull.* 23, 1941 (251-253).
- 634.75-1.5 Morrow, E. B.; Darrow, G. M. Effect of renovation of beds after harvest on yield and grade of strawberries. *Proc. Amer. Soc. Hort. Sci.* 41, 1942 (195-197). Biol. Abs. 17 (1964).
- 634.75-1.5 Rogers, W. S. Strawberries; making the most of a limited acreage. *E. Mulling Res. Sta. Ann. Rept.* (1941) 1942 (56-60).
- V, 3 634.75-1.544.7—Brierley, W. G.; Landon, R. H. The effect of time of mulching on the cold resistance of strawberry plants. *Proc. Amer. Soc. Hort. Sci.* (1940) 38, 1941 (424-426). E.S.R. 86 (47).
- 634.75-1.544.7—Armstrong, W. D. Strawberry plant behavior as influenced by mulch (preliminary report). *Proc. Amer. Soc. Hort. Sci.* 40, 1942 (367).
- 634.75-1.67—Bryant, L. R.; Beach, G. Strawberry production in Colorado. *Colo. Agric. Expt. Sta. Bull.* 481, 1943, pp. 12.
- IV, 5 634.75-1.67 : 581.192—Kudriavtseva, M. A. The effect of irrigation and fertilizers on the chemical composition of strawberries. *Brokhim. Kul'tur. Rast.* 7, 1940 (319-322). C.A. 35 (2928).
- IV, 2 634.75-1.81—Kharlamov, V. P. Strawberry manuring. *Dokl. Akad. S.-Kh. Nauk* No. 16, 1940 (7-10). [R.]
- VI, 1 634.75-1.81—Minges, P.; Maney, T. J.; Pickett, B. S. Strawberry production in southeastern Iowa as influenced by varieties, fertilizers and cultural practices. *Iowa Agric. Expt. Sta. Res. Bull.* 295, 1942 (509-564). Biol. Abs. 16 (1637).
- V, 6 634.75-1.811—Clark, J. H. Growth and composition of the strawberry plant as affected by source of nitrogen and pH value of the nutrient medium. *N. J. Agric. Expt. Sta. Bull.* 691, 1941, pp. 48. E.S.R. 87 (63).
- IV, 1 634.75-1.816.2—Schrader, A. L. Fertilizer applications and plant development of the strawberry, especially considering fall applications. *Trans. Peninsula Hort. Soc.* 53, 1939 (137-140). E.S.R. 83 (197).
- IV, 2 634.75-1.816.2—Anthony, W. G. Injury from spring application of fertilizers to strawberries. *Trans. Peninsula Hort. Soc.* (1939), 1940 (137-140). Hort. Abs. 10 (337).
- IV, 5 634.75-2-1.461—Hildebrand, A. A.; West, P. M. Strawberry root rot in relation to microbiological changes induced in root rot soil by the incorporation of certain cover crops. *Canad. J. Res.* 19C, 1941 (183-198).

# FERTILIZERS AND GENERAL AGRONOMY

- 634.75-2.1.874—West, P. M.; Hildebrand, A. A. The microbiological balance of strawberry root rot soil as related to the rhizosphere and decomposition effects of certain cover crops. *Canad. J. Res.* 19C, 1941 (199-210). IV, 5
- 634.75-2.19—Lineberry, R. A.; Burkhart, L. Nutrient deficiencies in the strawberry leaf and fruit. *Plant Physiol.* 18, 1943 (324-333).
- 634.76-1.671—Stevens, N. E.; Rogers, L. M.; Bain, H. F. Alkaline flooding water in cranberry growing. *Trans. Wis. Acad. Sci.* 32, 1940 (351-360). B.C.A.B. III, 1944 (41). VII, 3
- 634.76-1.81—Doehlert, C. A. Observations on fertilizing and harvesting cranberries. *Amer. Cranberry Grow. Assoc. Proc.* 71, 1941 (13-15, 18-19). E.S.R. 85 (353).
- 634.76-2.954—Cross, C. E. Recent results of weed control experimentation. *Cranberries* 5, No. 3, 1940 (8-9); No. 4, 1940 (5). E.S.R. 84 (334).
- 634.76-2.954—Crowley, D. J. Weed control in the cranberry bogs of western Washington. *Proc. Amer. Soc. Hort. Sci.* (1939) 37, 1940 (623-624). E.S.R. 85 (196). V, 1
- 634.771-1.5—Eastwood, H. W. Maintenance of fertility of banana land. *Agric. Gaz. N.S.W.* 52, 1941 (148-151).
- 634.771-1.81—Bowman, F. T.; Eastwood, H. W. Banana fertiliser experiments. *Agric. Gaz. N.S.W.* 51, 1940 (572-573). IV, 2
- 634.771-1.81—Bowman, F. T.; Eastwood, H. W. Banana manurial practices. *Agric. Gaz. N.S.W.* 51, 1940 (629-631).
- 634.771-1.81—Croucher, H. H.; Mitchell, W. K. Fertilizer investigations with the Gros Michel banana. *Jamaica Dept. Sci. Agric. Bull.* 19, 1940, pp. 49. IV, 1
- 634.771-2.4-1.4—Wardlaw, C. W. The banana in Central America. III. Panama disease. *Nature* 147, 1941 (380-381). R.A.M. 20 (266). IV, 5
- 634.774-1.415.1-1.811.9—Schappelle, N. A. The effect of pH and of certain minor elements on the growth of pineapples in water cultures. *J. Agric. Univ. P.R.* 26, 1942 (61-72). Biol. Abs. 18 (180). VII, 2
- 634.774-1.81—Briant, A. K.; Tidbury, G. E. Pineapple experiments in Zanzibar. *E. Afric. J.* 8, 1942 (80-84). Hort. Abs. 13 (76). VI, 4
- 634.774-1.81—Schappelle, N. A. Fertilizer studies with pineapples in Puerto Rico. *J. Agric. Univ. P.R.* 26, 1942 (41-60). E.S.R. 89 (218). VI, 4
- 634.774-1.81—Tidbury, G. E. Pineapple experiment in Zanzibar. Part II. *E. Afric. Agric. J.* 10, 1944 (40-43). VII, 4
- 634.774-1.81 : 355.01—Lewcock, H. K. Fertilizing pineapples in war time. *Queensland Agric. J.* 56, 1941 (272-276). Biol. Abs. 16 (999). V, 5
- 634.774-1.811—Nightingale, G. T. Potassium and phosphate nutrition of pineapple in relation to nitrate and carbohydrate reserves. *Bot. Gaz.* 104, 1942 (191-223). VI, 2
- 634.774-2.19 : 546.47—Lyman, C.; Dean, L. A. Zinc deficiency of pineapples in relation to soil and plant composition. *Soil Sci.* 54, 1942 (315-324). VI, 2

# BIBLIOGRAPHY OF SOIL SCIENCE

- VI, 3     **634.776-1.5**—Greig, A. M. W. Passion fruit culture. N.Z. *J. Agric.* 66, 1943 (106-108).

## 634.8 VITICULTURE

- VI, 2     **634.8 : 581.192.6**—Bagdasarashvili, Z. G. Salt resistance of the Kkatziteli grape vine on various stocks. *Pedology* No. 1, 1942 (16-29). [R.]  
           **634.8-1.416**—Pelišek, J. The water-soluble nutrient-salt content of the vineyard soils near Bzenec. *Vin. Obr.* 36, 1942 (49-51). C.A. 37 (4511).  
           **634.8-1.44**—Grusdev, G. I.; Peresvetov, A. S. Soil-botanical conditions of growth of grapes of the champagne type. *Pedology* No. 10, 1940 (67-87). [R.]
- VII, 3     **634.8-1.44**—Zonn, S. V.; Lebedev, N. N. An attempt to construct an industrial-genetic classification of vineyard soils of the U.S.S.R. *Pedology* No. 4-5, 1943 (17-35). C.A. 38 (607). [R.]  
           **634.8-1.51**—Theron, C. J. Soil cultivation in vineyards. *Farm. S. Africa* 16, 1941 (181-183).
- IV, 1     **634.8-1.81**—Branas, J.; Bernon, G.; Levadoux, L. A vine fertilizer experiment. *Ann. Éc. Agric. Montpellier* 25, 1939 (267-277). Hort. Abs. 10 (232). [F.]  
           **634.8-1.81**—Becker, J.; Wetzel, A. Manuring of vineyards in the light of recent experimental results. *Wein u. Rebe* 23, 1941 (1-17). Biol. Abs. 16 (1686).  
           **634.8-1.81**—Walters, D. V. Manurial trials with irrigated sultana vines in the Murray Valley, Australia. *Imp. J. Expt. Agric.* 10, 1942 77-88.
- VII, 1     **634.8-1.81**—Williams, W. O. Initial results from grape fertilizer plots. *Proc. Amer. Soc. Hort. Sci.* 42, 1943 (421-424).
- VI, 3     **634.8-1.81 : 581.192**—Hulač, V.; Kozák, J. The question of the influence of fertilizer on the chemical composition of grape leaves and must. *Chem. Obr.* 15, 1940 (106-109). C.A. 36 (3308).  
           **634.8-1.811**—Schrader, T. Nutrient uptake of vines and its relation to manuring and soil-nutrient reserves. *Wein u. Rebe* 24, 1942 (1-15). Hort. Abs. 14 (72).  
           **634.8-1.811.3**—Vinet, E. The physiological role of potassium in grape vines. *Ann. Agric.* 12, 1942 (224-239). C.A. 38 (3069).
- VI, 1     **634.8-1.813**—Schrader, T. Influence of different fertilizer practices on the reaction of vineyard soils. *Wein u. Rebe* 22, 1940 (223-229). Biol. Abs. 16 (1637).
- V, 1     **634.8-1.816.3**—Korneichuk, V. D.; Plakida, E. K. Effect of deep application of fertilizers on yields in vineyards. *Dokl. Akad. S.-Kh. Nauk* No. 3, 1941 (19-22). [R.]
- VII, 3     **634.8-1.84**—Wellington, R.; Collison, S. E. The use of nitrogen increases grape yields. *Amer. Fert.* 99, No. 9, 1943 (9, 20).  
           **634.8-2.19 : 546.27**—Scott, L. E. An instance of boron deficiency in the grape under field conditions. *Proc. Amer. Soc. Hort. Sci.* (1940) 38, 1941 (375-378). R.A.M. 20 (515).
- VII, 3     **634.8-2.19 : 546.27**—Scott, L. E. Boron nutrition of the grape. *Soil Sci.* 57, 1944 (55-65).

## FERTILIZERS AND GENERAL AGRONOMY

- 634.8-2.19 : 546.47**—**Snyder, E. ; Harmon, F. N.** Some effects of zinc sulphate on the Alexandria grape. *Proc. Amer. Soc. Hort. Sci.* 40, 1942 (325-327). R.A.M. 22 (7). C.A. 36 (6735). VI, 2
- 634.8-2.19 : 546.56**—**Teakle, L. J. H. ; Johns, H. K. ; Turton, A. G.** Experiments with micro-elements for the growth of crops in Western Australia. IX. Copper deficiency of currants at Gingin and its correction. *J. Dept. Agric. W. Aust.* 20, 1943 (171-184). VII, 2
- 634.8-2.19 : 546.72**—**Wann, F. B.** Control of chlorosis in American grapes. *Utah Agric. Expt. Sta. Bull.* 299, 1941, pp. 27. C.A. 36 (1135). VI, 3
- 634.8-2.19-1.811.3**—**Ragland, C. H.** Muscadine grapes respond to potash. *Better Crops with Plant Food* 24, No. 10, 1940 (9, 44).

## 634.9 FORESTRY

- 634.9-1.4**—**Lutz, H. J.** Disturbance of forest soil resulting from the uprooting of trees. *Yale Univ. Sch. Forestry Bull.* 45, 1940, pp. 37. C.A. 35 (249).
- 634.9-1.4**—**Pershina, M. N.** Certain problems of soil and forest relationships in the light of V. R. Williams's teaching. *Pedology* No. 4, 1940 (41-51). [Rg]
- 634.9-1.4 : 581.5**—**Brantseg, A.** Vegetation types on the forest soil and their importance to forest management. *Tidsskr. Skogst.* 49, 1941 (3-11, 42-50). Biol. Abs. 15 (2087).
- 634.9-1.4 : 581.5**—**Hough, A. F.** Soils in a virgin hemlock-beech forest on the Northern Allegheny plateau. *Soil Sci.* 54, 1942 (335-341). VI, 2
- 634.9-1.4 : 581.5**—**Hough, A. F.** Soil factors and stand history in a virgin forest valley on the northern Allegheny plateau. *Soil Sci.* 56, 1943 (19-28). VI, 4
- 634.9-1.414.3**—**Auten, J. T.** Some base-exchange relations of old-growth forest soil profiles in the central States. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (404).
- 634.9-1.416 : 525.5**—**Vágl, I.** Annual changes in the humus and readily soluble  $P_2O_5$  content of forest soils. *Érdész. Lapok* 79, 1940 (562-568). For. Abs. 2 (281). [H.g.f.c.]
- 634.9-1.417**—**Plice, M. J.** The bionomics of some forest soils. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (346-352).
- 634.9-1.417**—**Wilde, S. A. ; Patzer, W. E.** The rôle of soil organic matter in reforestation. *J. Amer. Soc. Agron.* 32, 1940 (551-562). IV, 1
- 634.9-1.417**—**Heiberg, S. O.** Silvicultural significance of mull and mor. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (405-408). V, 6
- 634.9-1.417**—**Tiurin, I. V.** The characterization of humus types in forest soils. *Pedology* No. 1-2, 1943 (34-46). [Rc.] VII, 1
- 634.9-1.417 (083.72)**—**Heiberg, S. O. ; Chandler, R. F., Jr.** A revised nomenclature of forest humus layers for the northeastern United States. *Soil Sci.* 52, 1941 (87-99).
- 634.9-1.417.2**—**Grabherr, W.** The absolute-colorimetric characterization of forest soils and their humus varieties. *Bodenk. Pfl. Ernähr.* 21/22, 1940 (473-489). Forsch. Dienst. 11 (64). [G.] IV, 6



## BIBLIOGRAPHY OF SOIL SCIENCE

- IV, 6    **634.9-1.417.2—Hassenkamp, W.** The conversion of raw-humus soils into mull soils by means of regeneration combined with field-crop and legume cultivation. *Forstarchiv* 17, 1941 (41-57). For. Abs. 3 (21). [G.]
- VII, 1    **634.9-1.417.2—Gysel, L. W.** The forest humus layers of Ohio. *Ohio St. Univ. Doct. Diss. Abs.* 38, 1942 (167-175). For. Abs. 5 (88).
- VI, 1    **634.9-1.427.3—Süchting, H.** Researches on the nutrient relationships of forest trees. VIII. On the technique of the determination of the dynamics of nutrients in forest soils. *Bodenk. Pflernähr.* 28, 1942 (340-361). [G.]
- V, 1    **634.9-1.43—Burger, H.** Physical properties of forested and untimbered soils. VI. Forest soils and recreational values of forests. *Mitt. Schweiz. Anst. Forstl. Versuchsw.* 21, 1940 (223-249). Biol. Abs. 15 (1807).
- V, 3    **634.9-1.432—Driuchenko, M. M.** Influence of forests on ground waters. *Pebylo* No. 3, 1941 (69-88). [R.g.]
- 634.9-1.432—Stoeckeler, J. H. ; Linnstrom, G. A.** Ecological factors influencing reforestation in northern Wisconsin. *Ecol. Monog.* 12, 1942 (191-212). Biol. Abs. 16 (2156).
- IV, 4    **634.9-1.432.2—Mafan, B.** Use of modern pedophysical methods in forestry. *Lesnická Práce* 19, 1940 (1-12). Biol. Abs. 15 (550). [Cz.f.g.]
- V, 5    **634.9-1.432.2—Rawitscher, F.** Water reserves in Brazilian forest soils. *An. Acad. Brasil. Cienc.* 14, No. 1, 1942. Nature 150 (183).
- VI, 1    **634.9-1.432.3—Lunt, H. A.** Forest lysimeter studies under hardwoods. *Conn. Agric. Expt. Sta. Bull.* 449, 1941 (521-572). For. Abs. 4 (85).
- V, 1    **634.9-1.433—Mafan, B.** The air content of the raw humus layer and forest soils. *Lesnická Práce* 20, 1941 (57-75). Biol. Abs. 15 (1810).
- 634.9-1.436—Shirley, H. L.** Lethal high temperatures for conifers, and the cooling effect of transpiration. *J. Agric. Res.* 53, 1936 (239-258).
- 634.9-1.436—Lorenz, R. W.** High temperature tolerance of forest trees. *Minn. Agric. Expt. Sta. Tech. Bull.* 141, 1939, pp. 25.
- IV, 2    **634.9-1.44—Donahue, R. L.** Forest-site quality studies in the Adirondacks. I. Tree growth as related to soil morphology. *Cornell Agric. Expt. Sta. Mem.* 229, 1940, pp. 44.
- 634.9-1.44—Turner, L. M.** Forest-land use and the soil profile. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (343-345).
- 634.9-1.44—Auten, J. T.** A critical discussion of soil classification with special reference to forests. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (341-343).
- VI, 2    **634.9-1.44—Cooper, W. E.** Forest site determination by soil and erosion classification. *J. Forestry* 40, 1942 (709-712). Biol. Abs. 17 (581).
- 634.9-1.44—Gibbs, J. A. ; Ligon, W. S.** The correlation of sites and species in tree planting. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (413).
- 634.9-1.44—Locke, S. S.** The use of soil-site factors in predicting timber yields. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (399-402).

# FERTILIZERS AND GENERAL AGRONOMY

- 634.9-1.44—Minckler, L. S.** Forest plantation success and soil-site characteristics on old fields in the Great Appalachian Valley. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (396-398).
- 634.9-1.44—Stoeckeler, J. H.; Linstrom, G. A.** A site classification for reforestation on the national forests of Wisconsin. *J. Forestry* 40, 1942 (308-315). Biol. Abs. 17 (255). VI, 2
- 634.9-1.44—Süchting, H.** The characterization and evaluation of forest soils. II. Weathered magnesia-rich soils from the Silurian, Devonian and Lower Carboniferous formations of the Harz. *Bodenk. Pfl. Ernähr.* 27, 1942 (289-310). [G.] V, 5
- 634.9-1.459-1.81—Holsoe, T.** Fertilizing planting stock on eroded soils. *J. Forestry* 39, 1941 (69-70). For. Abs. 3 (21). IV, 6
- 634.9-1.459-1.81—McComb, A. L.; Kapel, F. J.** Effect of subsoil acidity and fertility on the growth of seedling black locust and green ash. *Plant Physiol.* 17, 1942 (7-15). V, 3
- 634.9-1.466.1—Rayner, M. C.** The mycorrhizal habit in relation to forestry. *Chron. Bot.* 6, 1940 (12-13). E.S.R. 84 (159).
- 634.9-1.466.1—White, D. P.** Prairie soil as a medium for tree growth. *Ecology* 22, 1941 (398-407). V, 1
- 634.9-1.468—Bornebusch, C. H.** The fauna of forest soils. *Tidsskr. Skogbr.* 48, 1940 (293-309). Biol. Abs. 15 (2087).
- 634.9-1.468—Johnston, J. W.** A mull-forming biota under the red and white pine type. *For. Forest Notes* No. 23, 1940, p. 1. For. Abs. 3 (21).
- 634.9-1.468—Johnston, J. W.** Forest soil biota in relation to soil transformation. *For. Forest Notes* No. 22, 1940, p. 1. For. Abs. 3 (20).
- 634.9-1.468—Eaton, T. H., Jr.; Chandler, R. F., Jr.** The fauna of forest-humus layers in New York. *Cornell Agric. Expt. Sta. Mem.* 247, 1942, pp. 26. Biol. Abs. 17 (917). For. Abs. 4 (214). VI, 3
- 634.9-1.468-1.436.5—Pearse, A. S.** Effects of burning-over and raking-off litter on certain soil animals in the Duke Forest. *Amer. Midl. Nat.* 29, 1943 (406-424). For. Abs. 5 (160). VII, 3
- 634.9-1.472 : 581.144.2—Lutz, H. J.; Griswold, F. S.** The influence of tree roots on soil morphology. *Amer. J. Sci.* 237, 1939 (389-400). E.S.R. 86 (593). V, 5
- 634.9-1.472 : 581.144.2—Hopkins, H. T., Jr.; Donahue, R. L.** Forest tree root development as related to soil morphology. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (353). IV, 1
- 634.9-1.472 : 581.144.2—Garin, G. I.** Distribution of roots of certain tree species in two Connecticut soils. *Conn. Agric. Expt. Sta. Bull.* 454, 1942 (97-167). E.S.R. 87 (376).
- 634.9-1.472 : 581.144.2—Scully, N. J.** Root distribution and environment in a maple-oak forest. *Bot. Gaz.* 103, 1942 (492-517). Biol. Abs. 16 (1709). VI, 1
- 634.9-1.544.7—Fabricius, L.** On covering the soil with plant materials. *Forstwiss. Cbl.* 63, 1941 (97-100). For. Abs. 3 (212). [G.] V, 3
- 634.9-1.62—Le Barron, R. K.; Neetzel, J. R.** Drainage of forested swamps. *Ecology* 23, 1942 (457-465). Biol. Abs. 17 (362). VI, 2
- 634.9-1.81—Becker-Dillingen, J.** The potash requirements and the fertilizing of forest trees. *Ernähr. Pfl.* 36, 1940 (37-43). C.A. 36 (6734). VI, 1

# BIBLIOGRAPHY OF SOIL SCIENCE

- V, 3     **634.9-1.81** -Cummings, W. H. Fertilizer trials for improved establishment of shortleaf pine, white ash, and yellow poplar plantings on adverse sites. *J. Forestry* 39, 1941 (942-946). E.S.R. 86 (335). Biol. Abs. 16 (484).
- V, 6     **634.9-1.81** -Finn, R. F. Notes on the resampling of certain fertilized plots. *Black Rock Forest Pap.* 1, No. 16, 1942 (104-105).
- VI, 1     **634.9-1.81 : 633.367** -Némec, A. Experiments on the improvement of stagnating plantations by fertilizing and simultaneous cultivation of perennial lupin. *Forstarchiv* 18, 1942 (95-101). For. Abs. 4 (86). [G.]
- 634.9-1.811** -Kessell, S. L. The nutrition of the forest crop. *Aust. Forestry* 7, 1943 (4-21). *Emp. Forestry J.* 22, 1943 (122-134).
- VI, 1     **634.9-1.811.2** -Tamm, O. Some points of view on the phosphate problem in Swedish forests. *Skensk Bot. Tidskr.* 36, 1942 (383-389). For. Abs. 4 (85). [Sw.]
- V, 3     **634.9-1.811.4** -Auerochs, G. Lime requirements of forest soils in red marl regions of central Franconia. *Forstwiss. Ch.* 62, 1940 (266-283). Biol. Abs. 16 (483).
- IV, 5     **634.9-1.821.1** -Süchting, H. Practical hints in liming. *Forstarchiv* 16, 1940 (291-296). Biol. Abs. 15 (994).
- 634.9-1.821.1** -Forschungsdienst. Fertilizing forests increases the timber yield. *Forschungsdienst* 15, 1943 (104-105). For. Abs. 5 (233). [G.]
- 634.9-1.84** -Weinkauff, R. Further development of forestry by means of nitrogenous fertilizing. *Forstwiss. Ch.* 63, 1941 (243-255). For. Abs. 4 (87). [G.]
- V, 2     **634.9-1.851** -Jessen, W. The effect of rock phosphate upon the growth of tree species in acid forest soils. *Bodenk. Pfl. mähr.* 25, 1941 (31-34). [G.]
- 634.9-2.19** -Worley, C. L.; Lesselbaum, H. R.; Matthews, T. M. Deficiency symptoms for the major elements in seedlings of three broadleaved trees. *J. Tenn. Acad. Sci.* 16, 1941 (239-247). For. Abs. 3 (241).
- 634.9-2.19 : 546.56** -Rademacher, B. Copper-deficiency manifestations among forest stands on moorland soils. *Mitt. Forstl. Forstwiss.* 1940 (335-344). R.A.M. 22 (82).

## 634.95 SILVICULTURE

- VI, 2     **634.95 : 581.5** -Robinson, R. Some ecological aspects of afforestation and forestry in Great Britain. *Forestry* 16, 1942 (1-12).
- VI, 2     **634.952.2-1.417** -Tirén, L. A contribution to the discussion on the importance of the ripening of the humus in clear-cut areas before afforestation. *Midd. Skogforsöksomst* 32, 1940-41 (195-254). [Sw.e.]
- 634.953.6** -Leone, G. The importance of windbreaks for increasing agricultural production. *Ital. Agric.* 77, 1940 (161-169). [I.]
- IV, 6     **634.953.6** -Warren, G. H. Shelterbelts. *E. Afric. Agric. J.* 7, 1941 (8-19).
- 634.953.6** -Yeates, J. S. Farm trees and hedges. *Massey Agric. Coll. Bull.* 12, 1942, pp. 208.

# FERTILIZERS AND GENERAL AGRONOMY

- 634.953.6 -Den Uyl, D.** Windbreaks for protecting muck soils and crops. *Indiana Agric. Expt. Sta. Circ.* 287, 1943, pp. 12. E.S.R. 90 (336).
- 634.953.6 Gullebaud, W. H.** Shelter belts on upland farms. *J. Min. Agric.* 50, 1943 (317-321). VI, 4
- 634.953.6 -Syme, P. S.** Farm shelter. *N.Z. J. Agric.* 68, 1944 (89-97).
- 634.953.6 : 551.48 Basov, G. F.** The influence of shelterbelts in the Kamennaya steppe on surface run-off. *Lesnoe Khoz.* No. 2, 1941 (8-18). *For. Abs.* 3 (217). [R.] V, 3
- 634.953.6-1.432.2 - Gritsenko, I. F.** The effect of various windbreaks on soil moisture. *Pedology* No. 3, 1940 (24-38). [R.g.] IV, 1
- 634.953.6-1.432.2 Stoekeler, J. H.; Dortignac, E. J.** Snowdrifts as a factor in growth and longevity of shelterbelts in the Great Plains. *Ecology* 22, 1941 (117-124). IV, 5
- 634.953.6-1.459 : 551.55 Panfilov, Ya.** A contribution to the problem of the effect of windbreaks on wind velocity on slopes. *Sov. Agron.* No. 10, 1940 (11-17). [R.] V, 1
- 634.953.6-1.557 Kucheriavskiy, E. G.** The effect of windbreaks of different densities on crop yields. *Sov. Agron.* No. 10, 1940 (18-22). [R.] V, 1
- 634.956.4-1.81 Wilde, S. A.; Wittenkamp, R.; Stone, E. L., et al.** Effect of high rate fertilizer treatments of nursery stock upon its survival and growth in the field. *J. Forestry* 38, 1940 (806-809). *For. Abs.* 2 (298). IV, 5
- 634.956.4-1.81 Andrews, L. K.** Effects of certain soil treatments on the development of loblolly pine nursery stock. *J. Forestry* 39, 1941 (918-921). *Biol. Abs.* 16 (483). V, 3
- 634.956.4-1.81 Némec, A.** The influence of manuring on the growth of spruce in forest nurseries and on its further development after planting out. *Ročník Pěstování* 24, 1941 (113-128). [G.] IV, 6
- 634.956.4-1.81 Wilde, S. A.** A balanced diet for nursery stock. *Better Crops with Plant Food* 25, No. 6, 1941 (14-16, 40-42). *For. Abs.* 3 (195). V, 3
- 634.956.4-1.874 Brener, W. H.; Wilde, S. A.** The effect of non-legume green manure upon the fertility of forest nursery soils. *J. Forestry* 39, 1941 (478-482). *For. Abs.* 3 (103). V, 1
- 634.957 - Davis, J. E.** Forest planting on Illinois farms. *Ill. Agric. Expt. Sta. Circ.* 567, 1944, pp. 34.
- 634.957 : 627.51 Frank, F.** Successful plantings along streams and roads in Styria. *ForschDienst.* 12, 1941 (384-389). [G.] V, 3
- 634.957-1.415.3 Roth, G.** The afforestation of Hungarian alkaline soils. *Földész. Kisehl.* 42, 1940 (225-252). [H.G.]
- 634.957-1.445.4 Remezov, N. P.; Smaragdov, D. G.** Complex solution of the problem of the afforestation of steppes. *Pedology* No. 3, 1943 (34-40). [R.e.] VII, 1
- 634.957-1.62 Gut, R. C.** V-shaped trenched spots for drainage and reforestation. *J. Forest. Suisse* 91, 1940 (185-189). *Biol. Abs.* 15 (6151). *For. Abs.* 3 (43). [F.] IV, 6

# BIBLIOGRAPHY OF SOIL SCIENCE

## 634.97 TREE SPECIES

- 634.97-1.4—Tkachenko, M. E. Influence of various tree species on soils. *Pedology* No. 10, 1939 (3-16). [R.]
- 634.97-1.4—Ligon, W. S. Influence of soil type and other site factors on the success of tree plantings for erosion control. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (425-427).
- V, 1 634.97-1.4 : 581.144.2—Duncan, W. H. A study of root development in three soil types in the Duke Forest. *Ecol. Monog.* 11, 1941 (141-164). E.S.R. 85 (354).
- 634.97-1.436.6—Sakharov, M. I. Freezing and thawing of soils in forest associations. *Met. Hydrol.* No. 11-12, 1938 (136-148). *Pedology* No. 7, 1940 (117).
- IV, 6 634.97-1.44—Minckler, L. S. Plantation survival as related to soil type, aspect, and growing season. *J. Forestry* 39, 1941 (26-29). For. Abs. 3 (41).
- 634.97-1.459—Swingle, C. F. Seed propagation of trees, shrubs, and forbs for conservation planting. *SCS-TP* 27, 1939, pp. 205. E.S.R. 83 (454).

## 634.972.4 DECIDUOUS TREES. HARDWOODS

- 634.972-1.416—Wilde, S. A.; Patzer, W. E. Soil-fertility standards for growing northern hardwoods in forest nurseries. *J. Agric. Res.* 61, 1940 (215-221). C.A. 35 (1557).
- IV, 2 634.972-1.51—Hill, H. H. The effect of tillage on the growth of deciduous trees on poor sand soils. *Forstarchiv* 16, No. 6-7, 1940 (96-104). Biol. Abs. 14 (1473).
- V, 5 634.972-1.51—Paton, R. R. Effect of furrowing on natural reproduction of hardwoods. *Ohio Agric. Expt. Sta. Bmo. Bull.* 26, 1941 (161-168). For. Abs. 4 (24).
- VII, 2 634.972-1.811—Němec, A. Nutritional disturbances in deciduous trees growing on the bog-ore soils of the Gross-Skal region. *Shorn. Čsl. Akad. Zeměd.* 15, 1940 (356-364). C.A. 37 (6305).
- V, 1 634.972-2.4—Wright, E. Control of damping-off of broadleaf seedlings. *Phytopath.* 31, 1941 (857-858).
- VI, 1 634.972-1-1.432—Kharitonovich, F. N. Seasonal increment of oak under the conditions of the eroded and alluvial soils of the south-eastern slope of the "Kashlagach" valley. *Pedology* No. 3, 1941 (96-102). For. Abs. 4 (84). [R.]
- VII, 4 634.972-1-1.81—Němec, A. The influence of fertilizing on the growth and nutrition of pedunculate oaks in the forest-tree nursery of the large estates at Chlumetz. *Shorn. Čsl. Akad. Zeměd.* 16, 1941 (109-116). C.A. 38 (2154).
- V, 6 634.972-1-1.81—Finn, R. F.; Tryon, H. H. The comparative influence of leaf mould and inorganic fertilizers on the growth of red oak. *Black Rock Forest Pap.* 1, No. 17, 1942 (108-109).
- 634.972-1-1.841.1—Pridham, A. M. S. Response of red oak to fertilization with ammonium sulfate. *Proc. Amer. Soc. Hort. Sci.* (1941) 39, 1941 (439).
- IV, 3 634.972-1-2.19—Pirone, P. P. Treating chlorotic pin oaks by trunk injections and soil treatments. *Phytopath.* 31, 1941 (18).

# FERTILIZERS AND GENERAL AGRONOMY

- 634.972.4-1.415.1—Kawashima, R. ; Suyama, G.** On the reaction and lime status of Japanese chestnut orchard soil. *J. Sci. Soil Japan* 14, 1940 (143-147). [J.e.] IV, 4
- 634.972.6 : 581.144.2—Erteld, W.** Birch roots in poor sandy soils. With comparative observations on pine roots. *Ztschr. Forst- u. Jagdw.* 74, 1942 (193-215). For. Abs. 4 (162). [G.]
- 634.972.8-1.816.3—Melvin, J. K. ; McComb, A. L.** Response of American elm to loose and briquette fertilization in the greenhouse. *J. Forestry* 40, 1942 (49-51). For. Abs. 4 (14). V, 5
- 634.973.662-1.435.1—Kohnke, H.** The black alder as a pioneer tree on sand dunes and eroded land. *J. Forestry* 39, 1941 (333-334). E.S.R. 85 (485). V, 2
- 634.973.662-1.461.52—Gants, G. V.** The silvicultural importance of the grey alder as an accumulator of nitrogen. *Trudy Lesotek. Akad. Kirova* 58, 1940 (178-189). For. Abs. 3 (285). V, 6
- 634.973.662-1.461.52 Plotho, O. von.** Nodule synthesis on alder roots. *Arch. Mikrobiol.* 12, 1941 (1-18). R.A.M. 21 (34).
- 634.973.797-1.5 Forestry Abstracts.** Balsa (*Ochroma* spp.). For. Abs. 3, 1942 (273-277).
- 634.973.798-1.5—Brown, C. W.** The kurrajong: a valuable fodder and shelter tree. *Agric. Gaz. N.S.W.* 51, 1940 (540-544, 601-604). IV, 3
- 634.973.949-1.4 Davis, P. W.** Preliminary note on Nilambur soils with special reference to their suitability for teak. *Indian Forester* 66, 1940 (658-671). For. Abs. 2 (282). IV, 5
- 634.973.949-1.48 Rosevear, D. R.** Soil changes in Enugu plantations. *Farm and Forest* 3, 1942 (41). V, 6
- 634.973.949-1.81—Drees, E. M.** Further results of manuring experiments with teak. *Tectona* 33, 1940 (591-606). Biol. Abs. 15 (1204). IV, 5

## 634.975 CONIFERS

- 634.975 : 634.989.84—Jemison, G. M.** Effect of litter removal on diameter growth of shortleaf pine. *J. Forestry* 41, 1943 (213-214). E.S.R. 89 (73). VI, 4
- 634.975-1.4 Bernikov, V. V.** Pine forest soils of the state forest "Borovoe". *Pedology* No. 10, 1940 (58-66). [R.]
- 634.975-1.4 : 581.144.2—Tazoye, H.** Modification and plasticity of the initial root system of some useful coniferous seedlings in Hokkaido in different soils. *Bull. Sch. Agric. Taihoku Univ.* 1, 1940 (94-112). Biol. Abs. 15 (1417).
- 634.975-1.4 : 581.144.2—Day, M. W.** The root system of red pine saplings. *J. Forestry* 39, 1941 (468-472). For. Abs. 3 (113). V, 1
- 634.975-1.411.2 Zaitsev, A. A.** Relative productivity of soils of different carbonate content. *Lesnoe Khoz.* 11, 1939 (43-48). Pedology No. 7, 1940 (117). IV, 2
- 634.975-1.415.1—Chapman, A. G.** Tolerance of shortleaf pine seedlings for some variations in soluble calcium and H-ion concentration. *Plant Physiol.* 16, 1941 (313-326). IV, 4

## BIBLIOGRAPHY OF SOIL SCIENCE

- VII, 3    **634.975-1.415.1—Süchting, H.** Researches on the nutrient relationships of forest trees. IX. Influence of reaction and the neutralization of the soil by lime or magnesia on growth and nutrient uptake of larch, pine and spruce. *Bodenk. Pflernähr.* 32, 1943 (365-375). [G.]
- VII, 4    **634.975-1.415.3—Krupenikov, I. A.** Growth of *Pinus silvestris* L. in solonchak soils. *C.R. Acad. Sci. (U.S.S.R.)* 41, 1943 (255-258). [E.]
- V, 3    **634.975-1.416—Colle, T. S.** Soil changes associated with loblolly pine succession on abandoned agricultural land of the Piedmont Plateau. *Duke Univ. Sch. Forestry Bull.* 5, 1940, pp. 85. Biol. Abs. 16 (318).
- 634.975-1.416—Colle, T. S.** Soil changes and loblolly pine succession. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (353-354).
- V, 1    **634.975-1.416-1.811—Němec, A.** Investigations on nutritional disturbances in checked spruce stands. *Bodenk. Pflernähr.* 23, 1941 (363-384). [G.]
- 634.975-1.44—Chandler, R. F., Jr.; Schoen, P. W.; Anderson, D. A.** Relation between soil types and the growth of loblolly pine and shortleaf pine in east Texas. *J. Forestry* 41, 1943 (505-506). E.S.R. 89 (546).
- IV, 1    **634.975-1.466.1—Ellis, M.** Some fungi isolated from pinewood soil. *Trans. Brit. Mycol. Soc.* 24, 1940 (87-97). R.A.M. 19 (616).
- IV, 4    **634.975-1.466.1—How, J. E.** The mycorrhizal relations of larch. II. The rôle of the larch root in the nutrition of *Boletus elegans* Schum. *Ann. Bot.* 5, 1941 (121-131).
- V, 5    **634.975-1.466.1—McKee, M.; Birch, T. C.** Growth of spruce at Conical Hill: a mycorrhizal explanation. *N.Z. J. Forestry* 4, 1940-1941 (311-313). Biol. Abs. 16 (1239).
- 634.975-1.466.1—Modess, O.** The development of mycorrhiza in pine and spruce. *Symb. Bot. Upsalensis* 5, 1941 (3-147). For. Abs. 4 (214).
- V, 5    **634.975-1.466.1—Rayner, M. C.; Levisohn, I.** The mycorrhizal habit in relation to forestry. IV. Studies on mycorrhizal response in *Pinus* and other conifers. *Forestry* 15, 1941 (1-36). R.A.M. 21 (298).
- IV, 6    **634.975-1.466.1—Snow, A. G., Jr.** White pine propagation. *J. Forestry* 39, 1941 (332-333). R.A.M. 20 (415).
- IV, 5    **634.975-1.466.1—Thomas, W. D., Jr.** The mycorrhizal fungi and mycorrhizae of four coniferous plantations in the Rhine Valley. *Phytopath.* 31, 1941 (567-569).
- VII, 2    **634.975-1.466.1—Björkman, E.** The conditions favouring the formation of mycorrhizae in pine and spruce. *Symb. Bot. Upsalensis* 6, 1942 (1-190). For. Abs. 5 (160). [G.e.]
- VI, 1    **634.975-1.466.1—Fries, N.** Single-spore mycelia of some basidiomycetes as mycorrhiza formers in pine and spruce. *Svensk Bot. Tidskr.* 36, 1942 (151-156). For. Abs. 4 (85). [G.]
- VI, 3    **634.975-1.466.1—Hershey, J. W.** The influence of mycorrhiza on growth of Korean nut pine. *Forest Leaves* 32, No. 4-5, 1942 (19). For. Abs. 4 (214).
- 634.975-1.466.1—How, J. E.** The mycorrhizal relations of larch. III. Mycorrhiza formation in nature. *Ann. Bot.* 6, 1942 (103-129).

# FERTILIZERS AND GENERAL AGRONOMY

- 634.975-1.466.1—Rosendahl, R. O. ; Wilde, S. A.** Occurrence of ectotrophic mycorrhizal fungi in soils of cut-over areas and sand dunes. Abs. in *Bull. Ecol. Soc. Amer.* 23, 1942 (73). For. Abs. 4 (214). VI, 3
- 634.975-1.466.1—Kelley, A. P.** Note on the mycorrhizae of *Pinus virginiana* Mill. *Landenberg Lab. Pub.* 1943 (1). For. Abs. 5 (11).
- 634.975-1.466.1—McComb, A. L.** Mycorrhizae and phosphorus nutrition of pine seedlings in a prairie soil nursery. *Iowa Agric. Expt. Sta. Res. Bull.* 314, 1943 (582-612). E.S.R. 89 (449). Biol. Abs. 17 (1826). For. Abs. 5 (87). VII, 1
- 634.975-1.466.1—Neilson-Jones, W.** Tree nutrition and soil fertility. *J. Forestry* 41, 1943 (886-888). For. Abs. 5 (233).
- 634.975-1.466.1—Routien, J. B. ; Dawson, R. F.** Some interrelationships of growth, salt absorption, respiration, and mycorrhizal development in *Pinus echinata* Mill. *Amer. J. Bot.* 30, 1943 (440-451). VI, 4
- 634.975-1.466.1-1.847.2—Finn, R. F.** Mycorrhizal inoculation of soil of low fertility. *Black Rock Forest Pap.* 1, No. 19, 1942 (116-117). V, 6
- 634.975-1.51—Wagenknecht, E.** The influence of various methods of soil cultivation on the growth of pine plantations. *Ztschr. Forst- u. Jagdw.* 73, 1941 (297-342, 369-399). For. Abs. 4 (25). [G.] V, 5
- 634.975-1.58—Krieger, H.** Experiments to avoid the stagnation of plantings in the artificial regeneration of Norway spruce stands on soils of very fine texture. *Forstarchiv* 17, 1941 (96-109). For. Abs. 3 (124). [G.] V, 1
- 634.975-1.58—Wittich, W.** The activation of raw humus of extremely unfavourable quality. (Investigations in the forest districts of Adorf and Ebnath.) *Ztschr. Forst- u. Jagdw.* 74, 1942 (241-271). For. Abs. 4 (214). [G.] VI, 3
- 634.975-1.81—Marth, P. C. ; Gardner, F. E.** Responses of coniferous evergreens to fertilizer applications. *Proc. Amer. Soc. Hort. Sci.* (1940) 38, 1941 (709-714).
- 634.975-1.81—Némec, A.** Increasing the fertility of degraded forest soils by fertilizers and lupins. *Lesnická Práce* 20, 1941 (30-39). Biol. Abs. 15 (1810). V, 1
- 634.975-1.81—Wilde, S. A. ; Trenk, F. B. ; Albert, A. R.** Effect of mineral fertilizers, peat and compost on the growth of red pine plantations. *J. Forestry* 40, 1942 (481-484). For. Abs. 4 (87).
- 634.975-1.811.7—Némec, A.** Investigations on the mineral nutrition of dying pine stands in the Reviere underwood. *Sborn. Čsl. Akad. Zeměd.* 15, 1940 (423-429). C.A. 37 (6305). VII, 2
- 634.975-1.811.9—Smith, M. E.** Micronutrients essential for the growth of *Pinus radiata*. *Aust. Forestry* 7, 1943 (22-27). E.S.R. 90 (199). C.A. 38 (1062). VII, 3
- 634.975-1.821.1—Süchting, H.** Researches on nutritional relations of the forest. V. Comparative tests on forest soils as sources of nutrients by pot-culture methods with larch, pine and spruce, and on nutrient solubility by chemical methods. *Bodenk. Pfl. Ernähr.* 19, 1940 (125-160). Biol. Abs. 15 (2263). [G.] V, 2



## BIBLIOGRAPHY OF SOIL SCIENCE

- VI, 2 634.975-1.821.1 Pronchenko, V. F. Results of ten-year liming experiments in a spruce plantation. *Pedology* No. 3-4, 1942 (42-53). [R.e.]
- VI, 4 634.975-1.83 Némec, A. The effect of unbalanced fertilization with potash salt and kamite on the nutrition of the pine in forest nurseries. III. The effect of fertilization on the absorption of manganese, iron, aluminum and silica. *Strom. Čsl. Akad. Zemřd.* 15, 1940 (86-94). For Abs. 5 (12).
- V, 2 634.975-1.83 Némec, A.; Borisov, S. The effects of various forms of potash fertilizer on the growth and nutrient uptake of nursery spruce. *Bodenk. Pfl. Ernähr.* 25, 1941 (323-345). [G.]
- IV, 3 634.975-1.832 Jessen, W. The action of chloride-containing potash salts on the growth of various woody plants in pots. *Ernähr. Pfl.* 36, No. 6, 1940. Better Crops with Plant Food 24, 10 (35).
- IV, 5 634.975-1.84 Fabricius, L. Forestry experiments. XXII. A 10-year experiment with nitrogen. *Fortschr. Ch.* 62, 1940 (76-89). Biol. Abs. 15 (991).
- 634.975-1.84 : 581.192 Némec, A. The effect of nitrogenous manuring of young spruce on the nutrient uptake of the needles in relation to soil reaction and the nutrient content of the soil. *Bodenk. Pfl. Ernähr.* 17, 1940 (294-335). Biol. Abs. 15 (284). [G.]
- V, 1 634.975-2.111-1.83 Kopitke, J. C. The effect of potash salts upon the hardening of coniferous seedlings. *J. Forestry* 39, 1941 (555-558). For Abs. 3 (157).
- V, 1 634.975-2.19 Siggers, P. V.; Doak, K. D. The little-leaf disease of shortleaf pines. *S. Forest Expt. Sta. Occ. Pap.* No. 95, 1940, pp. 5. For Abs. 3 (171).
- VI, 2 634.975-2.19 Ludbrook, W. V. Fertilizer trials in southern New South Wales pine plantations. *Aust. J. Coun. Sci. Indust. Res.* 15, 1942 (307-314).
- IV, 2 634.975-2.19 : 546.27 Ludbrook, W. V. Boron deficiency symptoms on pine seedlings in water culture. *Aust. J. Coun. Sci. Indust. Res.* 13, 1940 (186-190). R.A.M. 20 (40).
- VI, 1 634.975-2.19 : 546.27 Ludbrook, W. V. The effects of various concentrations of boron on the growth of pine seedlings in water culture. *J. Aust. Inst. Agric. Sci.* 8, 1942 (112-114).
- V, 5 634.975-2.19 : 546.47 Smith, M. E.; Bayliss, N. S. The necessity of zinc for *Pinus radiata*. *Plant Physiol.* 17, 1942 (303-310).
- V, 2 634.975-2.19-1.466.1 Neilson-Jones, W. Fused needle disease of pines. *Emp. Forestry J.* 20, 1941 (151-161).
- 634.975-2.19-1.811.3 Némec, A. Biochemical investigation of the death of silver fir in the Furglitz forests of Bohemia. *Lesnická Práce* 19, 1940 (325-352). For Abs. 3 (158). [Cz.]
- VI, 2 634.975-2.19-1.811.3 Némec, A. A contribution to the knowledge of potassium and magnesium deficiency phenomena in seedlings and plantations of pine. *Fortschr. Ch.* 64, 1942 (160-166). For Abs. 4 (186). [G.]
- 634.975-2.19-1.811.4 Némec, A. Investigations on the cause of dying of a spruce stand. *Fortschr. Ch.* 62, 1940 (105-113). Biol. Abs. 15 (993).
- VI, 2 634.975-2.4-2.953 Johnson, L. P. V.; Linton, G. M. Experiments on chemical control of damping-off in *Pinus resinosa* Ait. *Canad. J. Res.* 20C, 1942 (559-571).

## FERTILIZERS AND GENERAL AGRONOMY

### 634.989.84 FOREST LITTER

- 634.989.84 -Sakharov, M. I.** Organic litter in forest associations. *Pedology* No. 10, 1939 (17-24). [R.]
- 634.989.84 -Day, G. M.** Topsoil changes in coniferous plantations. *J. Forestry* 38, 1940 (646-648). For. Abs. 2 (186). IV, 3
- 634.989.84 -Flannery, R. D.** Physical character and chemical composition of forest floors under selected forest types in western Washington. Abs. in *Bull. Ecol. Soc. Amer.* 21, 1940 (11). For. Abs. 4 (151). VI, 3
- 634.989.84--Kittredge, J., Jr.** A comparison of forest floors from plantations of the same age and environment. *J. Forestry* 38, 1940 (729-731). For. Abs. 2 (186). IV, 3
- 634.989.84 Stepanov, N. N.** The mineralization of foliage of forest trees and underbrush. *Pedology* No. 9, 1940 (15-34). C.A. 35 (6723). VI, 3
- 634.989.84 Auten, J. T.** Black locust, pines, and sassafras as builders of forest soil. *Cent. St. For. Expt. Sta. Tech. Note No. 32*, 1941, pp. 9. For. Abs. 3 (196). V, 3
- 634.989.84 Auten, J. T.** Forest soil properties associated with continuous oak, old-field pine, and abandoned field cover in Vinton County, Ohio. *Cent. St. For. Expt. Sta. Tech. Note No. 34*, 1941, pp. 8. For. Abs. 3 (196). V, 3
- 634.989.84 Chandler, R. F., Jr.** The amount and mineral content of freshly fallen leaf litter in the hardwood forests of central New York. *J. Amer. Soc. Agron.* 33, 1941 (859-871). V, 1
- 634.989.84 Rode, A. A.** Physico-chemical characteristics of the water-soluble matter of forest litter. *Pedology* No. 3, 1941 (103-128). [R.g.] V, 3
- 634.989.84--Süchting, H.** Researches on nutritional relationships of the forest. VI. Comparative tests on humus from the A<sub>0</sub> horizon as sources of nutrients. Pot experiments with pine and spruce, and nutrient-solubility determinations by chemical methods (dynamics of soil nutrients). *Bodenk. Pflernähr.* 24, 1941 (87-112). [G.] IV, 6
- 634.989.84 -Mork, E.** The litter-fall in our forests. *Medd. Norske Skogforsk.* No. 29, 1942 (297-365). For. Abs. 5 (161). [N.g.]
- 634.989.84 -Hope, J. G.** Litter fauna of two types of pine forest. *Bull. Wagner Inst. Sci. Philad.* 18, 1943 (1-7). C.A. 37 (3867).
- 634.989.84-1.461.1.3 -Gustafson, F. G.** Decomposition of the leaves of some forest trees under field conditions. *Plant Physiol.* 18, 1943 (704-707). VII, 2
- 634.989.84-1.461.1.3 Wittich, W.** Investigations on the disintegration of litter on a mull soil. II. *Forstarchiv* 19, 1943 (1-18). For. Abs. 5 (232). [G.] VII, 4
- 634.989.84-1.461.3 --Hale, J. M.; Halversen, W. V.** The enumeration of ammonia-oxidizing bacteria in forest litter. *J. Bact.* 39, 1940 (100-101). C.A. 34 (7511).

## BIBLIOGRAPHY OF SOIL SCIENCE

### 635 VEGETABLES

- VI, 4     **635-1.432**—Neller, J. R. Water table levels in sawgrass peat soils in relation to yields of vegetables. *Proc. Fla. St. Hort. Soc.* 55, 1942 (144-145). Biol. Abs. 17 (1765).
- VII, 2     **635-1.51**—Hall, J. W. Double-digging versus single-digging. *Gard. Chron.* No. 2978, 1944 (38-39).
- VII, 2     **635-1.51-1.411.4**—Sweet, R. D. Cultivation studies of certain vegetables grown on peat soils. *Cornell Agric. Expt. Sta. Bull.* 795, 1943, pp. 44.
- VII, 4     **635-1.586**—Erenburg, P. M. How to bring arid regions under cultivation. *Trudy Kazakh. Inst. Zemled.* No. 11-12, 1940 (25-28). Hort. Abs. 14 (58).
- V, 4     **635-1.67**—Ware, L. M. The effects of fertilizers, organic material and irrigation on the yield of certain truck crops. *Proc. Amer. Soc. Hort. Sci.* (1941) 39, 1941 (363-366).
- IV, 2     **635-1.81**—Morgan, M. F.; Jacobson, H. G. M. Soil management for intensive vegetable production on sandy Connecticut valley land. *Conn. Agric. Expt. Sta. Bull.* 439, 1940 (557-592).
- VII, 3     **635-1.81**—Zhurbicki, Z. I. Organic and mineral manures in vegetable crop rotations. *Vest. Oresh. Kartof.* No. 5, 1940 (3-12). Hort. Abs. 14 (26).
- V, 3     **635-1.81**—Bushnell, J. Fertilizers for early cabbage, tomatoes, cucumbers, and sweet corn. *Ohio Agric. Expt. Sta. Bull.* 622, 1941, pp. 30. E.S.R. 86 (189).
- IV, 4     **635-1.81 : 581.192** Elmendorf, E.; Pierce, H. P. Calcium and phosphorus content of certain vegetables grown under known conditions of fertilization. *J. Nutr.* 20, 1940 (243-253). B.C.A.B. III, 1941 (37).
- 635-1.811.8**—Schuphan, W. The influence of chloride and sulphate manuring on yield, marketability and biological value of several vegetables with reference to edaphic and climatic factors. *Bodenk. Pflernähr.* 19, 1940 (265-315). *Ernähr. Pfl.* 37, 1941 (66-69). [G.]
- V, 4     **635-1.816.3**—Jacob, W. C.; White-Stevens, R. H. "Starter" solutions in the production of cauliflower and Brussels sprouts on Long Island. *Proc. Amer. Soc. Hort. Sci.* (1941) 39, 1941 (349-350).
- VI, 2     **635-1.816.3**—Tiedjens, V. A.; Schermerhorn, L. G. Growing vegetables with fertilizer in water. *N.J. Agric. Expt. Sta. Bull.* 694, 1942, pp. 20. C.A. 36 (7213).
- VI, 4     **635-1.816.3**—Rahn, E. M. Getting the most from fertilizers for vegetable crops. *Pa. Agric. Expt. Sta. Bull.* 443, 1943, pp. 13. E.S.R. 89 (309).
- VII, 2     **635-1.83**—Kudriavtseva, A. A. The effect of potassic fertilizers on vegetable yield and quality. *Vest. Oresh. Kartof.* No. 3, 1940 (72-85). Hort. Abs. 13 (171).
- 635-1.83**—Boshart, K. Potassium fertilizer trials in vegetable growing. *Prakt. Bl. PflBau.* 20, 1942 (25-42). Hort. Abs. 14 (86).
- 635-1.84**—Bartholdi, W. L.; Odland, T. E. The response of four vegetable crops to different nitrogen carriers. *Proc. Amer. Soc. Hort. Sci.* (1940) 38, 1941 (633-636). Biol. Abs. 15 (2083).
- V, 1     **635-1.85**—Gericke, S. The phosphorus fertilization of vegetables. *Gartenbauwiss.* 15, 1940 (159-183). E.S.R. 84 (759).

# FERTILIZERS AND GENERAL AGRONOMY

- 635-1.85**—**Gericke, S.** Phosphoric-acid fertilization in vegetable culture. *Gartenbauwiss.* 16, 1941 (263-291). C.A. 37 (3871).
- 635-1.86/7**—**Walker, F.** The use of organic manures for horticultural crops. *Tasm. J. Agric.* 13, 1942 (65-70). C.A. 36 (5942).
- 635-1.874**—**Margolina, K. P.** The use of green manuring for vegetables. *Vest. Ovosh. Kartof.* No. 1, 1941 (93-102). Hort. Abs. 14 (86).
- 635-1.875**—**Secrett, F. A.** The use of composts in market-gardening. *Ann. Appl. Biol.* 30, 1943 (395-397).
- 635-1.878**—**Hutchins, A. E. ; Krantz, F. A.** Peat as a soil supplement in vegetable production. A preliminary report. *Proc. Amer. Soc. Hort. Sci.* 42, 1943 (502-506).
- 635-2**—**Ogilvie, L.** Diseases of vegetables. *Min. Agric. Bull.* 123, 1941, pp. 84.
- 635-2.19**—**Woodman, R. M.** The effects of a deficiency of certain essential elements on the development and yield of carrots, onions, and radishes grown in sand cultures under glass. *J. Pomol.* 17, 1940 (297-307). E.S.R. 83 (336). Biol. Abs. 14 (1342).
- 635-2.19**—**Hill, H.** Malnutrition symptoms and plant tissue tests of vegetable crops. *Better Crops with Plant Food* 27, No. 5, 1943 (6-10, 44-45).
- 635-2.19 : 546.27**—**Purvis, E. R. ; Hanna, W. J.** Vegetable crops affected by boron deficiency in eastern Virginia. *Ua. Truck Expt. Sta. Bull.* 105, 1940 (1721-1742).
- 635-2.19 : 546.27**—**Bouquet, A. G. B.** The place of boron in producing truck crops. *Oreg. St. Hort. Soc. Proc. Ann. Meetg.* 33, 1941 (70-76). C.A. 36 (4257).
- 635-2.19 : 546.27**—**White-Stevens, R. H.** Limits in the use of borax in the production of certain vegetable crops. *Proc. Amer. Soc. Hort. Sci.* (1941) 39, 1941 (367). E.S.R. 87 (514).
- 635-2.19-1.811.6**—**Wallace, T.** Magnesium deficiency of fruit and vegetable crops. *Long Ashton Agric. Hort. Res. Sta. Ann. Rept.* 1940 (24-28). C.A. 36 (4257).
- 635.13-1.5**—**Brown, P. H.** Commercial carrot production. *Occas. Pub. Sci. Hort.* No. 4, 1943 (24-28). Hort. Abs. 13 (115).
- 635.13-1.81 : 577.16**—**Scheunert, A. ; Wagner, K. H.** The vitamin-A effect of carrots variously manured. *Biochem. Ztschr.* 303, 1939 (208-220). Ernähr. Pfl. 37 (6). B.C.A. 59 (587).
- 635.13-1.81 : 577.16**—**Pollard, A.** Note on the effect of manurial treatments on the carotene content of carrot roots. *Long Ashton Agric. Hort. Res. Sta. Ann. Rept.* 1941 (32).
- 635.13-1.81 : 581.144.2**—**Raleigh, G. J.** The effect of manures, nitrogen compounds, and growth-promoting substances on production of branched roots in carrots. *Proc. Amer. Soc. Hort. Sci.* 41, 1942 (347-352). B.C.A. B. III, 1943 (168).
- 635.13-1.81 : 581.192**—**Wallace, T. ; Jones, J. O. ; Plant, W.** A note on the effects of farmyard manure and of various fertiliser treatments on the content of ash and mineral constituents of ash in the carrot crop. *Long Ashton Agric. Hort. Res. Sta. Ann. Rept.* 1941 (40-44).
- 635.13-1.81 : 581.192**—**Lemke, M.** The influence of habitat on the quantity and quality of carrot yield. *ForschDienst. Sonderh.* 16, 1942 (459-464). C.A. 37 (3544).

VII, 1

IV, 3

IV, 3

V, 6

VII, 1

VII, 2

# BIBLIOGRAPHY OF SOIL SCIENCE

- 635.13-1.811—Woodman, R. M. The nutrition of the carrot. *Ann. Appl. Biol.* 30, 1943 (1-7).
- IV, 2 635.13-1.811.4—Purdy, A. W. Effects of controlled calcium supply on carrots grown in colloidal clay cultures. *Proc. Amer. Soc. Hort. Sci.* (1939) 37, 1940 (799-802). C.A. 34 (7513).
- VII, 4 635.13-1.811.91—Woodman, R. M.; Johnson, D. A. The response of the carrot to water supply and fertilizer on a gravel soil. *J. Agric. Sci.* 34, 1944 (82-87).
- VII, 3 635.13-2.954 Journal of the Department of Agriculture, Victoria. Weed control in carrot crops. *J. Dept. Agric. Victoria* 41, 1943 (575-576).
- 635.13-2.954—Beare, J. A. The use of kerosene sprays for weeding carrots. *J. Dept. Agric. S. Aust.* 47, 1944 (344-345).
- 635.15 : 546.27—Skok, J. Effect of boron on growth and development of the radish. *Bot. Gaz.* 103, 1941 (280-294).
- 635.15-1.811—Woodman, R. M. The nutrition of the radish. *Ann. Appl. Biol.* 30, 1943 (319-322).
- 635.15-1.811.1 Mantel, E. The effects of various nitrogen compounds on the nitrogen metabolism of radishes in pot experiments. *Bodenk. Pflernähr.* 24, 1941 (342-356). [G.]
- VII, 1 635.25 : 546.331.31—Hargrave, J.; Thompson, F. C. The use of salt in the manuring of onions. *Kilron Agric. J.* No. 9, 1943 (19, 21, 23).
- IV, 5 635.25-1.4 : 581.192 Platenius, H.; Knott, J. E. Factors affecting onion pungency. *J. Agric. Res.* 62, 1941 (371-379).
- 635.25-1.5—Hoare, A. H. Onion growing on the farm. *J. Min. Agric.* 47, 1940 (163-166).
- 635.25-1.5—Walker, J. C.; Edmundson, W. C.; Jones, H. A. Onion-set production. *U.S.D.A. Farm. Bull.* 1955, 1944, pp. 21.
- 635.25-1.5—Tincker, M. A. H.; Brown, F. C. Onion production from sets. *J. Roy. Hort. Soc.* 69, 1944 (66-68).
- VI, 1 635.25-1.67—Curry, A. S. Effect of irrigation practices on growth and yield of White Grano onions. *N. Mex. Agric. Expt. Sta. Bull.* 281, 1941, pp. 34. B.C.A.B. III, 1942 (211).
- V, 1 635.25-1.81—Bello, A. C. A study of fertilizers with onions grown on Lipa clay loam in pots. *Philipp. Agricut.* 29, 1941 (772-790). Hort. Abs. 11 (237).
- IV, 5 635.25-1.81—Hawthorn, L. R. Onion fertilizer experiments at Laredo, Big Wells, and Eagle Pass, Texas. *Tex. Agric. Expt. Sta. Bull.* 596, 1941, pp. 20.
- VII, 1 635.25-1.81—Moyse, W. J. Cultivation of onions. *Occas. Pub. Sci. Hort.* No. 4, 1943 (29-33). B.C.A.B. III, 1943 (233).
- VII, 2 635.25-1.811.1—Woodman, R. M. Nitrogen nutrition of the onion. *Ann. Appl. Biol.* 30, 1943 (116-117). Hort. Abs. 13 (179).
- 635.25-2.954.1—Newhall, A. G.; Lawrence, G. H. M.; Jusice, O. L. Weed control in onions with dilute sulfuric acid spray. *Cornell Agric. Expt. Sta. Bull.* 784, 1942, pp. 27. Biol. Abs. 17 (1067).
- VI, 3 635.261-2.954.1—Blackman, G. E. Weed control in leeks by sulphuric acid spraying. *J. Min. Agric.* 50, 1943 (88-89).
- 635.262-1.5—Comin, D. Growing garlic in the North. *Ohio Agric. Expt. Sta. Bimo. Bull.* 27, 1942 (70-71).

# FERTILIZERS AND GENERAL AGRONOMY

- 635.263-1.5**—Wells, S. P. Shallots cultivation. *Fruit-Grower* 94, 1942 (353-354, 357). Hort. Abs. 13 (20).
- 635.31-1.81**—Nicolaisen, N.; Hahne, A.; Hubert, K., et al. Results of German experimental work with asparagus. *Landw. Jahrb.* 90, 1940 (430-494). *Forschldienst.* 12 (10). [G.]
- 635.31-1.816.3**—Schermerhorn, L. G. Deep soil treatment is essential for asparagus. *N.J. St. Hort. Soc. News* 21, 1940 (1203, 1204, 1215). E.S.R. 83 (336). IV, 2
- 635.34-1.5**: 581.192—Fagan, T. W.; Phillips, R.; Davies, R. O. The cultivation and composition of kale. *Welsh J. Agric.* 17, 1943 (97-101). Hort. Abs. 13 (116).
- 635.34-1.81**—Bushnell, J. Fertilizers for early cabbage. *Ohio Veg. Potato Grow. Assoc. Proc.* 25, 1940 (89-94). C.A. 34 (7054). IV, 2
- 635.34-1.81**—Wallace, T.; Croxall, H. E.; Pickford, P. T. H. Manurial experiments on vegetable crops. I. Effects of farmyard manure and of various fertiliser treatments on savoys and carrots. II. Effects of farmyard manure and other manurial treatments on savoys and early potatoes. *Long Ashton Agric. Hort. Res. Sta. Ann. Rept.* 1941 (25-31, 33-38). V, 6
- 635.34-1.81**—Wallace, T.; Croxall, H. E.; Pickford, P. T. H. Manurial experiments on vegetable crops. IV. Effects of farmyard manure and other manurial treatments on spring cabbage and carrot crops. *Long Ashton Agric. Hort. Res. Sta. Ann. Rept.* 1942 (34-37). VI, 4
- 635.34-1.81**: 577.16—Burrell, R. C.; Brown, H. D.; Ebright, V. R. Ascorbic acid content of cabbage as influenced by variety, season, and soil fertility. *Food Res.* 5, 1940 (247-252). Biol. Abs. 14 (1611). IV, 2
- 635.34-1.811**—Woodman, R. M. The nutrition of the spring cabbage. *Ann. Appl. Biol.* 28, 1941 (181-188).
- 635.34-2.19**: 546.27—Chandler, F. B. Boron deficiency symptoms in some plants of the cabbage family. *Me. Agric. Expt. Sta. Bull.* 402, 1940 (155-187). E.S.R. 84 (633). IV, 6
- 635.34-2.19**: 546.27—Chandler, F. B. Mineral nutrition of the genus *Brassica* with particular reference to boron. *Me. Agric. Expt. Sta. Bull.* 404, 1941 (307-400). Better Crops with Plant Food 25, 8 (29). V, 1
- 635.34-2.19**: 546.27—Walker, J. C.; McLean, J. G.; Jolivet, J. P. The boron deficiency disease in cabbage. *J. Agric. Res.* 62, 1941 (573-587). IV, 6
- 635.34-2.19**: 546.27—Dennis, A. C. Boron deficiency in members of the cabbage family. *Fert. Feed. J.* 27, 1942 (41, 43, 55, 57).
- 635.34-2.19**: 546.27—Chandler, F. B. Nutrition of brassica and potatoes. *Soil Sci.* 57, 1944 (67-73).
- 635.34-2.19-1.811.3**—Palmer, R. G. Effects of potash on the tip burn of cabbage. *Phytopath.* 31, 1941 (18). IV, 3
- 635.35-1.5**—Terry, H. B. Cauliflower and broccoli. *Farm. S. Africa* 15, 1940 (414, 417).
- 635.35-1.81**—Thompson, J. K.; Thompson, F. C. A note on the manuring of early cauliflowers. *Kirton Agric. J.* No. 8, 1942 (15).
- 635.35-1.811**—Wetzel, A. Nutrient requirements of cauliflower. *Ernähr. Pfl.* 36, 1940 (81-83). Hort. Abs. 11 (26).

# BIBLIOGRAPHY OF SOIL SCIENCE

- 635.35-2.19 : 546.27—**Brandenburg, E.** Boron deficiency in cauliflower and kohlrabi. *Angew. Bot.* 24, 1942 (99-113). R.A.M. 21 (510).
- VI, 1 635.35-2.19 : 546.27—**Dearborn, C. H.** Boron nutrition of cauliflower in relation to browning. *Cornell Agric. Expt. Sta. Bull.* 778, 1942, pp. 29.
- 635.41-1.811—**Woodman, R. M.** The nutrition of spinach. *Ann. Appl. Biol.* 29, 1942 (97-102). Hort. Abs. 12 (151).
- V, 6 635.41-1.811.4—**Schroeder, R. A.** Some effects of calcium and pH upon spinach. *Proc. Amer. Soc. Hort. Sci.* (1940) 38, 1941 (482-486). E.S.R. 86 (779).
- VII, 3 635.41-1.816.3—**Tiedjens, V. A.** Response of spinach roots to fertilizer placement. *N.J. St. Hort. Soc. News* 24, 1943 (1526). E.S.R. 90 (478).
- 635.41-1.85 : 581.192—**Michael, G. ; Heldecker, L.** A further contribution to the question of the variability of the phosphoric-acid fractions in spinach in relation to various levels of phosphatic manuring. *Bodenk. Pflernähr.* 17, 1940 (358-372). Biol. Abs. 15 (284). [G.]
- 635.42-1.5—**Orman, A. C.** The growing of spinach beet. *Agric. Gaz. N.S.W.* 53, 1942 (263-264).
- 635.44-1.5—**Scheibe, A.** The rocket, an oil-yielding plant new to Germany. *Landw. Jahrb.* 91, 1941 (199-233). [G.]
- 635.44-1.824 : 581.192—**Scharrer, K. ; Schreiber, R.** The effects of potash manures poor and rich in magnesia on the protein and oil yields of the rocket (*Eruca sativa*). *Bodenk. Pflernähr.* 24, 1941 (55-64). [G.]
- V, 4 635.52 : 546.77—**Brenchley, W. E. ; Warington, K.** Value of molybdenum for lettuce. *Nature* 149, 1942 (196). B.C.A.A. III, 1942 (423).
- 635.52-1.5—**Beattie, W. R.** Lettuce growing. *U.S.D.A. Farm. Bull.* 1609, 1940, pp. 29. R.A.M. 20 (242).
- 635.52-1.5—**Morgan, C. N.** Lettuce-growing. *Queensland Agric. J.* 57, 1943 (282-290). Biol. Abs. 18 (1294).
- 635.52-1.81—**Griffiths, A. E.** Studies of the response of lettuce to manure and commercial fertilizers. *Proc. Amer. Soc. Hort. Sci.* (1941) 39, 1941 (351-356). Biol. Abs. 16 (995).
- VI, 2 635.52-1.811—**Lorenz, O. A. ; Minges, P. A.** Nutrient absorption by a summer crop of lettuce in Salinas Valley, California. *Proc. Amer. Soc. Hort. Sci.* 40, 1942 (523-527). C.A. 36 (6736).
- 635.52-1.811—**Woodman, R. M.** The nutrition of lettuce. *Ann. Appl. Biol.* 29, 1942 (213-218).
- IV, 3 635.53-2.19 : 546.27—**Bouquet, A. G. B. ; Powers, W. L.** Celery stem crack and the use of boron in its control. *Oreg. Agric. Expt. Sta. Circ. Inform.* 194, 1939, pp. 4. Biol. Abs. 15 (135).
- VII, 3 635.53-2.19 : 546.27—**Bergström, S.** Boron deficiency in celery. *Växskyddsmotiser* No. 6, 1941 (90-92). Hort. Abs. 14 (34).
- VI, 2 635.53-2.19 : 546.27—**Lachance, R. O. ; Bertrand, P. ; Perrault, C.** An extreme manifestation of stem-crack of celery due to boron deficiency. *Sci. Agric.* 23, 1942 (187-193). [F.c.]
- V, 6 635.53-2.19 : 546.27—**Nelson, R. C.** Boron deficiency in Minnesota-grown celery. *Minn. Hort.* 70, 1942 (43). Hort. Abs. 12 (152).

# FERTILIZERS AND GENERAL AGRONOMY

- 635.53-2.4—Brooks, A. N.** Control of sclerotinose of celery on Florida muck. Abs. in *Phytopath.* 30, 1940 (703). R.A.M. 20 (3). IV, 2
- 635.61-1.415.1—Hartman, J. D.; Gaylord, F. C.** Soil acidity for watermelons on sand. *Proc. Amer. Soc. Hort. Sci.* (1940) 38, 1941 (623-625). V, 3
- 635.61-1.811.9: 581.192—Jacob, W. C.; White-Stevens, R. H.** Studies in the minor element nutrition of vegetable crop plants. II. The interrelation of potash, boron and magnesium upon the flavor and sugar content of melons. *Proc. Amer. Soc. Hort. Sci.* (1941) 39, 1941 (369-374).
- 635.61-1.842—Cunningham, C. R.** Fruit setting of watermelons. *Proc. Amer. Soc. Hort. Sci.* (1939) 37, 1940 (811-814). C.A. 34 (7515). IV, 2
- 635.61-1.842-2.4—Stoddard, D. L.** Fusarium wilt of cantaloupe and studies on the relation of potassium and nitrogen supply to susceptibility. *Trans. Peninsula Hort. Soc.* 31, No. 4, 1942 (91-93). R.A.M. 21 (438). VI, 1
- 635.62-1.5—Wester, R. E.; Boswell, V. R.** Observations on culture and handling of the dish rag gourd in Maryland. *Proc. Amer. Soc. Hort. Sci.* 42, 1943 (579-584). Biol. Abs. 18 (374).
- 635.62-1.81—Hepler, J. R.** Fertilizer and other experiments with growing squash. *Proc. Amer. Soc. Hort. Sci.* (1940) 38, 1941 (618-620). Biol. Abs. 15 (2083).
- 635.627-1.5—Saenz Maroto, A.** The christophine (*Sechium edule*). *Rev. D.N.A. Costa Rica* 5, 1940 (494-502). Hort. Abs. 12 (113).
- 635.627-1.5—Gardeners' Chronicle.** Choco, chayote or chucu. *Gard. Chron.* 113, 1943 (41). Hort. Abs. 13 (76).
- 635.63-1.5—Anderson, W. S.** Growing cucumbers for pickling in Mississippi. *Miss. Agric. Expt. Sta. Bull.* 355, 1941, pp. 17.
- 635.63-1.5—Ross, W. J.** Gherkin growing. *Queensland Agric. J.* 55, 1941 (32-34). Hort. Abs. 11 (204).
- 635.63-1.81—Anderson, W. S.** Experimental work on cucumbers. *Miss. Farm Res.* 3, No. 5, 1940 (7). E.S.R. 83 (490).
- 635.63-1.811.9—Reinhold, J.; Hausrath, E.** Experiments with trace element fertilization of cucumbers. *Gartenbauwiss.* 15, 1940 (147-158). C.A. 35 (3023). IV, 5
- 635.64: 539.16—Gleditsch, E.; Graf, T.** Some effects of radioactive materials on plant growth. *Nord. JordbrForsk.* 24, 1942 (225-236). [N.] VI, 4
- 635.64: 546.15—Hageman, R. H.; Hodge, E. S.; McHargue, J. S.** Effect of potassium iodide on the ascorbic acid content and growth of tomato plants. *Plant Physiol.* 17, 1942 (465-472). V, 6
- 635.64: 546.27—Gilliarovsky, I. P.; Chernov, I. S.** The effect of boron on the increase of the tomato and cucumber crops. *Ovoshchevodstvo* No. 11/12, 1940 (28-29). Biol. Abs. 16 (2091). VI, 2
- 635.64: 546.27: 546.711—Hester, J. B.** Boron and manganese in tomato production. *Amer. Fert.* 95, No. 7, 1941 (5-8, 24, 26). V, 1
- 635.64: 546.77—Elze, D. L.** Molybdenum injury of tomato plants. *Palestine J. Bot.* 3R, 1940 (154-157). E.S.R. 89 (555).
- 635.64: 581.192.6—Heller, V. G.; Hageman, R. H.; Hartman, E. L.** Sand culture studies of the use of saline and alkaline waters in greenhouses. *Plant Physiol.* 15, 1940 (727-733).



# BIBLIOGRAPHY OF SOIL SCIENCE

- 635.64 : 581.192.6**—Wall, R. F.; Hartman, E. L. Sand culture studies of the effects of various concentrations of added salts upon the composition of tomato plants. *Proc. Amer. Soc. Hort. Sci.* 40, 1942 (460-466).
- 635.64-1.4 : 581.192**—Hester, J. B.; Kohman, E. F. The influence of soil type and fertilization upon the yield and composition of tomatoes. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (281-283).
- 635.64-1.4 : 581.192**—Hester, J. B. Influence of soil fertility upon the quality of tomatoes. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (243-245).
- 635.64-1.5**—Beattie, J. H.; Beattie, W. R.; Doolittle, S. P. Production of tomatoes for canning and manufacturing. *U.S.D.A. Farm. Bull.* 1901, 1942, pp. 37.
- 635.64-1.5**—Corbett, W. The cultivation of tomatoes in the open. *Ocas. Pub. Sci. Hort.* No. 4, 1943 (34-37). Hort. Abs. 13 (117).
- 635.64-1.548**—Mullard, S. R. Soil-less cultivation by the sub-irrigation system. *Carnation Yrbk.* 1943 (32-34).
- IV, 5 **635.64-1.81**—Bacher, T. Orienting experiments with increasing quantities of phosphate and potash to tomatoes in the greenhouse. *Tidsskr. Planteavl* 44, 1939 (189-206). Hort. Abs. 11 (124).
- 635.64-1.81**—Phillips, C. E. Fertilizer studies on tomatoes in Delaware. *Trans. Peninsula Hort. Soc.* 30, 1940 (124). Biol. Abs. 16 (226).
- V, 4 **635.64-1.81**—Watanabe, S., et al. Trials of tomato fertilizers. *J. Hort. Assoc. Japan* 12, 1941 (35-54). Hort. Abs. 12 (39).
- 635.64-1.81-1.67**—Thomas, W.; Mack, W. B.; Cotton, R. H. Nitrogen, phosphorus, and potassium nutrition of tomatoes at different levels of fertilizer application and of irrigation. *Proc. Amer. Soc. Hort. Sci.* 42, 1943 (535-544).
- 635.64-1.811**—Emmert, E. M. Plant tests as a guide to fertilizer treatment of tomatoes (preliminary report). *Proc. Amer. Soc. Hort. Sci.* (1940) 38, 1941 (621-622). Biol. Abs. 15 (2083).
- VI, 4 **635.64-1.811**—Emmert, E. M. Plant-tissue tests as a guide to fertilizer treatment of tomatoes. *Ky. Agric. Expt. Sta. Bull.* 430, 1942, pp. 48. E.S.R. 88 (765).
- 635.64-1.811**—Arnon, D. I.; Hoagland, D. R. Composition of the tomato plant as influenced by nutrient supply, in relation to fruiting. *Bot. Gaz.* 104, 1943 (576-590). Biol. Abs. 17 (2190).
- VII, 1 **635.64-1.811**—Thomas, W.; Mack, W. B. Comparison of the nutrition of greenhouse and field grown tomatoes with respect to the fertilizer elements. *Proc. Amer. Soc. Hort. Sci.* 42, 1943 (545-546).
- VII, 4 **635.64-1.811.3**—Clarke, E. J. Studies on tomato nutrition—  
I. The effect of varying concentrations of potassium on the growth and yield of tomato plants. *Eire J. Dept. Agric.* 41, 1944 (53-81).
- VII, 1 **635.64-1.811.9 : 581.192**—Lyon, C. B.; Beeson, K. C.; Ellis, G. H. Effect of micro-nutrient deficiencies on growth and vitamin content of the tomato. *Bot. Gaz.* 104, 1943 (495-514). Biol. Abs. 17 (1971).
- VII, 1 **635.64-1.816.2**—Sayre, C. B. Comparison of nutrient solutions for transplanting tomatoes and for packing southern plants for shipment. *Proc. Amer. Soc. Hort. Sci.* (1939) 37, 1940 (905-909). B.C.A.B. III, 1943 (234).

# FERTILIZERS AND GENERAL AGRONOMY

- 635.64-1.816.2—Stair, E. C. ; Hartman, J. D.** Use of nutrient solutions in the transplanting water for tomato plants in 1939. *Proc. Amer. Soc. Hort. Sci.* (1939) 37, 1940 (913-915). B.C.A.B. III, 1943 (234). VII, 1
- 635.64-1.816.2—Sayre, C. B.** Nutrient or starter solutions and vitamin B for transplanting tomatoes. *Proc. Amer. Soc. Hort. Sci.* (1940) 38, 1941 (489-495).
- 635.64-1.816.2—Sayre, C. B.** Wartime starter solutions to meet present emergency. *Amer. Fert.* 96, No. 9, 1942 (8-9, 20, 22, 24). V, 5
- 635.64-1.816.2—Sayre, C. B.** Starter solutions for tomato plants. *N.Y. St. Agric. Expt. Sta. Bull.* 706, 1943, pp. 18. VI, 4
- 635.64-1.83—Hester, J. B.** The influence of potash fertilization upon the yield and quality of tomatoes. *Amer. Fert.* 93, No. 11, 1940 (5-8, 24-25). IV, 2
- 635.64-1.84-1.816.3—Hester, J. B.** The efficient use of nitrogen in tomato culture. *Proc. Amer. Soc. Hort. Sci.* (1941) 39, 1941 (308-312). Biol. Abs. 16 (995). V, 4
- 635.64-1.85—Ingram, J. M. ; Stair, E. C. ; Hartman, J. D.** Field response of tomatoes to large applications of phosphates. *Proc. Amer. Soc. Hort. Sci.* 42, 1943 (529-534). VII, 1
- 635.64-1.86.7—Hartman, J. D. ; Stair, E. C.** Experiments in plowing under coarse organic matter for tomatoes. *Proc. Amer. Soc. Hort. Sci.* 40, 1942 (471-474). C.A. 36 (6736). VI, 2
- 635.64-2.19:546.47—Beckenbach, J. R.** Occurrence and control of zinc deficiency in tomatoes in the Manatee area. *Proc. Fla. St. Hort. Soc.* 55, 1942 (132-133). Biol. Abs. 17 (1764). VI, 4
- 635.64-2.19:546.711—Thomas, H. R.** A defoliation of tomatoes in Indiana controlled by spraying with manganese sulfate. *Plant Dis. Repr.* 26, 1942 (198-199). C.A. 36 (3898). VI, 3
- 635.64-2.19-1.415.1—Hirano, T.** Studies on soil sickness of the tomato. *J. Sci. Soil Japan* 14, 1940 (521-530). [J.e.] IV, 4
- 635.64-2.19-1.811.3—Walsh, T. ; Clarke, E. J.** A chlorosis of tomatoes. *Eire J. Dept. Agric.* 39, 1942 (316-325). VI, 4
- 635.64-2.19-1.811.6—Cromwell, B. T. ; Hunter, J. G.** Chlorosis in tomatoes. *Nature* 150, 1942 (606-607). B.C.A.A. III, 1943 (72). VI, 2
- 635.64-2.19-1.811.6—Jones, J. O. ; Nicholas, D. J. D. ; Wallace, T.** Experiments on the control of magnesium deficiency in greenhouse tomatoes. Progress report I. *Long Ashton Agric. Hort. Res. Sta. Ann. Rept.* (1943) 1944 (48-53). VII, 4
- 635.64-2.4—Beach, W. S. ; Chen, Sh. Y.** Experimental control of damping-off in tomato seedlings transplanted from sand, including the immediate application of fungicidal drenches. *Pa. Agric. Expt. Sta. Bull.* 434, 1942, pp. 26.
- 635.64-2.8—Thomas, W. ; Mack, W. B.** A foliar diagnosis study of greenhouse tomato plants showing symptoms of streak disease. *Proc. Amer. Soc. Hort. Sci.* (1941) 39, 1941 (319-328). V, 4
- 635.64-2.8—Selman, I. W.** The influence of lime and potash on mosaic infection in the tomato (var. *Potentate*) under glass. *J. Pomol.* 20, 1943 (89-106). VII, 1
- 635.648-1.5—Beattie, W. R.** Culture and uses of okra. *U.S.D.A. Farm. Bull.* 232, 1940, pp. 11.

# BIBLIOGRAPHY OF SOIL SCIENCE

- IV, 4     **635.65 : 546.27—Huyskes, J. A.** On the significance of boron for bean culture. *Tijdschr. PlZicht.* 46, 1940 (133-140). Biol. Abs. 15 (578).  
**635.65 : 546.27—Baumeister, W.** The effect of boron on the nitrogen content of the bean. *Phytopath. Ztschr.* 13, 1941 (481-504). Hort. Abs. 12 (153).
- V, 6     **635.65 : 546.27—Wester, R. E.; Magruder, R.** Effect of boron on plant growth and dry seed yield in lima bean (*Phaseolus lunatus* L.). *Proc. Amer. Soc. Hort. Sci.* (1940) 38, 1941 (472-474). E.S.R. 86 (778).  
**635.65-1.5—Fellden, G. St. C.** Haricot beans. *Imp. Bur. Hort. Occ. Pap.* 6 (War), 1941, pp. 20.  
**635.65-1.5—Oldershaw, A. W.** Winter beans. *J. Min. Agric.* 48, 1941 (71-77).  
**635.65-1.5—Hardenburg, E. V.** Experiments with field beans. *Cornell Agric. Expt. Sta. Bull.* 776, 1942, pp. 28. E.S.R. 87 (507).  
**635.65-1.5—Hazen, L. E.** Mung bean production. *Agric. Engng.* 23, 1942 (101).  
**635.65-1.5—Staten, H. W.** Mung beans for Oklahoma. *Okla. Agric. Expt. Sta. Circ.* 104, 1942, pp. 7. E.S.R. 87 (664).  
**635.65-1.5—Wade, B. L.** Snap beans for marketing, canning and freezing. *U.S.D.A. Farm. Bull.* 1915, 1942, pp. 14.
- VII, 2     **635.65-1.5—Brandon, J. F.; Robertson, D. W.; Binkley, A. M., et al.** Field bean production without irrigation in Colorado. *Colo. Agric. Expt. Sta. Bull.* 482, 1943, pp. 22.  
**635.65-1.5—Davis, J. F.** Soil management for field beans. *Better Crops with Plant Food* 27, No. 8, 1943 (19-24, 44-45). *Mich. Agric. Expt. Sta. Quart. Bull.* 25, 1943 (342-350).  
**635.65-1.5—Oldershaw, A. W.** Field beans. *J. Min. Agric.* 49, 1943 (210-214).
- V, 3     **635.65-1.816.3—Parker, M. M.** Fertilizer placement on snap beans and cabbage. *Trans. Peninsula Hort. Soc.* 30, No. 4, 1940 (36-42). Biol. Abs. 16 (479).
- V, 1     **635.65-1.816.3—National Joint Committee on Fertilizer Applications.** Fertilizer placement experiment on snap beans. *Proc. Natl. Joint Cttee. Fert. Appl.* 16, 1940 (97-98). Biol. Abs. 15 (1792).
- VI, 3     **635.65-1.816.3—Zimmerley, H. H.** Fertilization and green manure practices for snap beans and spinach. *Proc. Natl. Joint Cttee. Fert. Appl.* 17, 1941 (114-115). Biol. Abs. 17 (1072).  
**635.65-1.816.3—Parker, M. M.** Effect of fertilizer placement on snap beans, lima beans and peas. *Va. Truck Expt. Sta. Bull.* 107, 1942 (1759-1781).
- VI, 4     **635.65-1.83 : 581.192—Scharrer, K.; Schreiber, R.** Pot experiments on the effects of increasing applications of potash and magnesium on the protein yield of field beans. *Bodenk. Pflernähr.* 30, 1943 (360-370). [G.]
- V, 2     **635.65-2.19—Banana Bulletin.** Bean diseases common in Wyong district. *Banana Bull. Sydney* 1, No. 60, 1941 (9). K.A.M. 21 (62).

# FERTILIZERS AND GENERAL AGRONOMY

- 635.65-2.19-1.811.6 : 546.711**—**Parbery, N. H.** The excessive uptake of manganese by beans showing scald and magnesium deficiency. Its regulation by liming. *Agric. Gaz. N.S.W.* 54, 1943 (14-17). VI, 3
- 635.656 : 546.27**—**Biebl, R.** The effect of boron on peas. *Jahrb. Wiss. Bot.* 90, 1942 (731-749). Hort. Abs. 14 (105).
- 635.656 : 546.65**—**Drobkov, A. A.** Influence of cerium, lanthanum and samarium on development of peas. *C.R. Acad. Sci. (U.S.S.R.)* 32, 1941 (669-670). Hort. Abs. 13 (65). VI, 4
- 635.656-1.432.2**—**Repp-Nowosad, G.** An experiment with peas grown at various soil-water contents. *ForschDienst.* 12, 1941 (154-159). [G.] V, 2
- 635.656-1.461.52 : 546.22**—**Gaw, H. Z. ; Soong, P. N.** Nodulation and dry weight of garden peas as affected by sulfur and sulfates. *J. Amer. Soc. Agron.* 34, 1942 (100-103).
- 635.656-1.461.52-1.811.4**—**Schroeder, R. A.** Some effects of calcium and nitrogen upon peas. *Proc. Amer. Soc. Hort. Sci.* 41, 1942 (375-377). B.C.A.B. III, 1943 (202). VII, 1
- 635.656-1.5**—**Oldershaw, A. W.** Peas as a grain crop. *J. Min. Agric.* 50, 1944 (548-552).
- 635.656-1.67**—**Monson, O. W.** Irrigation of seed and canning peas in the Gallatin Valley, Montana. *Mont. Agric. Expt. Sta. Bull.* 405, 1942, pp. 23. Biol. Abs. 17 (1533). VI, 4
- 635.656-1.81**—**Aamlsepp, I. ; Vaher, A.** Manurial experiments with peas in Esthonia. *Agronomiam Tartu* 1940 (676-689). Ernähr. Pfl. 37 (22). IV, 3
- 635.656-1.816.3**—**Cook, R. L.** Soil management for cannery peas. *Better Crops with Plant Food* 28, No. 6, 1944 (10-12, 50-51). VII, 4
- 635.656-1.816.3**—**Davis, J. F. ; Cook, R. L.** Fertilizers for cannery peas. *Mich. Agric. Expt. Sta. Quart. Bull.* 26, 1944 (200-206). VII, 3
- 635.656-1.847.2**—**Hofer, A. W. ; Wilson, J. K.** The effect of inoculation on maturity of canning peas in New York State. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (183-186).
- 635.656-1.847.2**—**Hofer, A. W.** Effect of inoculation on yield of canning peas in New York State. *Soil Sci.* 56, 1943 (117-126). VI, 4
- 635.656-1.847.2**—**Hofer, A. W.** Inoculation: a source of nitrogen for peas. *Farm Res.* 9, No. 2, 1943 (4, 14). E.S.R. 89 (311). VII, 1
- 635.656-2.19 : 546.711**—**Piper, C. S.** Marsh spot of peas: a manganese deficiency disease. *J. Agric. Sci.* 31, 1941 (448-453).
- 635.75-1.5**—**Watson, M.** The culture of caraway and celery seed in California. *J. Calif. Hort. Soc.* 4, 1943 (9-13). Biol. Abs. 17 (1970).
- 635.75-1.5**—**Palacios, F. A.** The cultivation of aniseed in Catamarca. *Alman. Min. Agric. Argentina* 1944 (351-352). [Sp.]
- 635.8-1.5**—**Lambert, E. B.** Mushroom growing in the United States. *U.S.D.A. Farm. Bull.* 1875, 1941, pp. 38.
- 635.8-1.5**—**Nisikado, Y. ; Kimura, K. ; Miyawaki, Y.** Studies on the principles of growing Japanese matutake artificially. II. Isolation of the mycelium in pure culture. *Ber. Ohara Inst.* 8, 1941 (443-454). [E.]
- 635.8-1.5**—**Padwick, G. W.** Mushroom cultivation in India. *Indian Farm.* 2, 1941 (363-366).

## BIBLIOGRAPHY OF SOIL SCIENCE

- 635.8-1.5—Kilgman, A. M. Some cultural and genetic problems in the cultivation of the mushroom, *Agaricus campestris* Fr. *Amer. J. Bot.* 30, 1943 (745-763).
- VII, 2 635.8-1.5—Mader, E. O. Some factors inhibiting the fructification and production of the cultivated mushroom, *Agaricus campestris* L. *Phytopath.* 33, 1943 (1134-1145).
- 635.8-1.875—Lambert, E. B. Indoor composting for mushroom culture. *U.S.D.A. Circ.* 609, 1941, pp. 15.
- IV, 5 635.8-1.875—Lambert, E. B. Studies on the preparation of mushroom compost. *J. Agric. Res.* 62, 1941 (415-422).
- 635.8-1.875—Stoller, B. B. Preparation of synthetic composts for mushroom culture. *Plant Physiol.* 18, 1943 (397-414).

## 635.9 ORNAMENTAL HORTICULTURE

- 635.935.724-1.5—Smith, A. G., Jr. Experiments on the culture of narcissus. *Va. Agric. Expt. Sta. Bull.* 357, 1943, pp. 16.
- IV, 3 635.935.79-1.811—Stoughton, R. H. The nutrition of Dutch iris: an experiment in factorial design. *J. Pomol.* 18, 1941 (297-306).
- VII, 2 635.937.12-1.416.862.1—Allen, R. C. Influence of aluminum on the flower color of *Hydrangea macrophylla* DC. *Boyce Thompson Inst. Contr.* 13, 1943 (221-242).
- 635.937.138-1.811—Post, K. Effects of mineral-nutrient deficiencies and excesses upon the vegetative growth and flowering of sweet peas. *Cornell Agric. Expt. Sta. Bull.* 745, 1940, pp. 27.
- V, 4 635.937.34-1.411.4—Brase, K. D. Roses in soil and soil-peat. *Amer. Rose Ann.* 25, 1940 (111-113). *Biol. Abs.* 16 (996).
- 635.937.34-1.415.3: 546.22—Rutsek, J. C. The effect of sulphur on growth of roses in an alkaline soil. II. Results for 1940 and 1941. *Proc. Amer. Soc. Hort. Sci.* 40, 1942 (565-568). *C.A.* 36 (7209).
- VII, 1 635.937.34-1.417—Link, C. B.; Culvert, J. R. The effect of soil mixtures on production and growth of Briarcliff roses. *Proc. Amer. Soc. Hort. Sci.* 42, 1943 (635-637).
- V, 4 635.937.34-1.433.1—Boicourt, A. W. The importance of soil aeration. *Amer. Rose Ann.* 1941 (159-160). *E.S.R.* 86 (486).
- V, 5 635.937.34-1.5—Smith, A. G., Jr. Experiments on the culture of hybrid tea roses. *Va. Agric. Expt. Sta. Bull.* 334, 1941, pp. 32. *Biol. Abs.* 16 (1235).
- VI, 2 635.937.34-1.5—Wheeting, L. C. Soil management for roses in the greenhouse. *Wash. Agric. Expt. Sta. Bull.* 421, 1942, pp. 20.
- 635.937.34-1.5—Wilde, E. I.; Meahl, R. P. Trenching and soil mixtures, their effect on rose production. *Amer. Rose Ann.* 27, 1942 (93-98). *Biol. Abs.* 16 (1435).
- IV, 3 635.937.34-1.81—Rosen, H. R. Fertilizer in relation to disease in roses. *Better Crops with Plant Food* 24, No. 10, 1940 (21-22, 43-44).
- VII, 1 635.937.34-1.811.1—Seeley, J. G. The effect of various nitrate levels on the growth and production of greenhouse roses. *Proc. Amer. Soc. Hort. Sci.* 42, 1943 (629-634).
- IV, 3 635.937.34-1.811.9—Laurie, A.; Culbert, J. R. Studies on the effects of additions of trace elements to the greenhouse rose. *Proc. Amer. Soc. Hort. Sci.* (1939) 37, 1940 (945-960). *E.S.R.* 83 (778).

# FERTILIZERS AND GENERAL AGRONOMY

- 635.937.34-1.878**—Allen, R. C. Peat moss as a soil amendment for roses. *Proc. Amer. Soc. Hort. Sci.* (1940) 38, 1941 (687-689). Biol. Abs. 16 (227). V, 3
- 635.937.34-2.4-1.81**—Mader, E. O. Effect of mineral nutrition on flower production of own-rooted roses and the incidence of black-spot. *Phytopath.* 33, 1943 (1185-1189). VII, 2
- 635.938.422-1.4**—McCullough, H. Studies in soil relations of species of violets. *Amer. J. Bot.* 28, 1941 (934-941). V, 3
- 635.938.65-1.81**—DeFrance, J. A. ; Stene, A. E. Response of *Daphne cneorum* to various fertilizers and soil treatments and to soil from different sources. *Proc. Amer. Soc. Hort. Sci.* (1939) 37, 1940 (1066-1072). C.A. 35 (4538). IV, 6
- 635.938.86-1.5**—Gersch, H. C. The evening primrose. *J. Dept. Agric. S. Aust.* 47, 1944 (396-398).
- 635.939.124-2.19 : 546.72**—McHatton, T. H. ; Bowden, R. A. A study of chlorosis affecting the Japanese azalea. *Ga. Univ. Bull.* 39, 1939 (36-39). E.S.R. 84 (779). V, 1
- 635.939.183-2.19-1.811.6** Bowden, R. A. Effect of magnesium on primulas. *Ga. Univ. Bull.* 39, 1939 (33-35). E.S.R. 84 (779).
- 635.939.31-1.415.1**—Clapp, H. S. The lime and acid tolerance of the common lilac in New Hampshire soils. *Proc. Amer. Soc. Hort. Sci.* 42, 1943 (638-640).
- 635.939.72-2.19**—Agricultural Gazette of New South Wales. Gardemias in health and disease. *Agric. Gaz. N.S.W.* 52, 1941 (160-161).
- 635.939.98-1.5**—Baur, A. F. J. Soil and fertilizer for chrysanthemums. *Bull. Chrysanth. Soc. Amer.* 9, No. 2, 1941 (14-15). Biol. Abs. 15 (2260).
- 635.939.98-1.81 : 581.192**—Stecher, H. The influence of supplying fertilizer at various rates on the quality of ornamental chrysanthemums. *Bodenk. PflErnähr.* 24, 1941 (65-86). [G.]
- 635.944-1.51**—Hargrave, J. ; Thompson, F. C. The effect of surface cultivation on bulb weight lifted. *Kirtton Agric. Inst. Rept. Bulb Expts.* 7, 1940 (22-23). IV, 2
- 635.944-1.81**—Hargrave, J. ; Thompson, F. C. The manuring of tulip bulbs. *Kirtton Agric. Inst. Rept. Bulb Expts.* 7, 1940 (7-16). IV, 2
- 635.946.69-1.4**—Fruit-Grower. Carnation growing for market. *Fruit-Grower* 90, 1940 (365-366).
- 635.946.69-1.548**—Tincker, M. A. H. Carnations grown in sand and gravel. *Carnation Yrbk.* 1943 (19-30).
- 635.946.69-2.19**—Clapp, R. ; Folley, G. E. Nutritional symptoms in the carnation. *Proc. Amer. Soc. Hort. Sci.* (1940) 38, 1941 (673-678). V, 3
- 635.964-1.5**—Edgecombe, S. W. Fine turf grasses. Species, varieties and cultural suggestions. *Trans. Iowa St. Hort. Soc.* 75, 1940 (288-302). Biol. Abs. 16 (212). V, 3
- 635.964-1.5**—Welton, F. A. ; Carroll, J. C. Lawn experiments. *Ohio Agric. Expt. Sta. Bull.* 613, 1940, pp. 43. C.A. 35 (1169).
- 635.964-1.5 : 711.553.9**—Mercer, S. P. ; Linehan, P. A. Belfast Harbour airport. *J. Bd. Greenh. Res.* 6, 1939 (38-41). Biol. Abs. 15 (1785).

# BIBLIOGRAPHY OF SOIL SCIENCE

- VI, 4     **635.964-1.5 : 711.553.9—Knapp, J. S.** Grasses for airports. *Seed World* 52, 1942 (38-40).    Herb. Abs. 13 (149).  
          **635.964-1.5 : 711.553.9—Monteith, J., Jr.** Turf for airfields and other defense projects. *Turf Culture* 2, 1942 (193-239).    Biol. Abs. 16 (2316).
- V, 1     **635.964-1.51—Dawson, R. B. ; Ferro, R. B.** Scarification and turf improvement. *J. Bd. Greenk. Res.* 6, 1939 (11-17).    Biol. Abs. 15 (1780).
- VI, 2     **635.964-1.81—Bengtson, J. W. ; Harrington, G. E.** Principles underlying fertilization of turf. *Turf Culture* 2, 1941 (142-154).    Biol. Abs. 16 (1870).
- VII, 4    **635.964-1.81 : 581.144.2—Bell, R. S. ; DeFrance, J. A.** Influence of fertilizers on the accumulation of roots from closely clipped bent grasses and on the quality of the turf. *Soil Sci.* 58, 1944 (17-24).
- V, 4     **635.964-1.878—DeFrance, J. A.** A comparison of grasses for athletic fields and the effect on the turf of peat incorporated with the soil. *Proc. Amer. Soc. Hort. Sci.* (1941) 39, 1941 (433-438).
- VI, 3     **635.964-2.112-1.84—Carroll, J. C.** Effects of drought, temperature and nitrogen on turf grasses. *Plant Physiol.* 18, 1943 (19-36).    Biol. Abs. 17 (1278).  
          **635.964-2.51—Tingey, D. C. ; Maguire, B.** Lawn weeds and their control. *Utah Agric. Expt. Sta. Circ.* 117, 1941, pp. 14.    Biol. Abs. 15 (1790).    E.S.R. 85 (618).  
          **635.964-2.51—Welton, F. A. ; Carroll, J. C.** Control of lawn weeds and the renovation of lawns. *Ohio Agric. Expt. Sta. Bull.* 619, 1941, pp. 85.  
          **635.964-2.51—Woods, J. J.** Chemical weed control in lawns. *Sci. Agric.* 22, 1942 (356-365).
- IV, 2     **635.976-1.81—Chadwick, L. C.** Fertilization of woody ornamental plants. *Ohio Agric. Expt. Sta. Bmo. Bull.* 25, 1940 (89-96).    C.A. 34 (7515).  
          **635.976-1.81—Batson, F. S. ; Monosmith, R. O.** An illustrated guide to care of ornamental trees and shrubs. *Miss. Agric. Expt. Sta. Bull.* 354, 1941, pp. 57.  
          **635.976-1.81—Chadwick, L. C.** Fertilization of ornamental trees, shrubs, and evergreens. *Ohio Agric. Expt. Sta. Bull.* 620, 1941, pp. 29.
- IV, 6     **635.98 : 577.16—Laurie, A. ; Kiplinger, D. C.** The effect of vitamin B<sub>1</sub> on some ornamental greenhouse crops. *Ohio Agric. Expt. Sta. Bmo. Bull.* 26, 1941 (17-28).    Biol. Abs. 15 (1423).
- VI, 4     **635.98-1.4 : 636.086.25—Cheshunt Experimental and Research Station.** The use of straw in glasshouse soils. *Cheshunt Expt. Res. Sta. Circ.* 14, 1942, pp. 7.
- VII, 2    **635.98-1.4 : 636.086.25—Bewley, W. F.** The use of straw in glasshouse soils. *Ann. Appl. Biol.* 30, 1943 (399-400).  
          **635.98-1.415.1—Spurway, C. H. ; Wildon, C. E.** Controlling the reaction (pH) of greenhouse soils. *Mich. Agric. Expt. Sta. Quart. Bull.* 26, 1943 (115-121).

## FERTILIZERS AND GENERAL AGRONOMY

- 635.98-1.415.3**—Hageman, R. H. ; Hartman, E. L. Injuries produced by saline and alkaline waters on greenhouse plants and the alleviation of alkaline injury by neutralization. *Proc. Amer. Soc. Hort. Sci.* (1941) 39, 1941 (375-380). Biol. Abs. 16 (1233). Hort. Abs. 12 (96). V,
- 635.98-1.415.3**—Merkle, F. G. ; Dunkle, E. C. Soluble salt content of greenhouse soils as a diagnostic aid. *J. Amer. Soc. Agron.* 36, 1944 (10-19). VII,
- 635.98-1.421**—Youden, W. J. Experimental designs to increase accuracy of greenhouse studies. *Boyce Thompson Inst. Contr.* 11, 1940 (219-228). Biol. Abs. 14 (1200). P.B.A. 10 (272).
- 635.98-1.548**—Withrow, R. B. ; Biebel, J. P. ; Eastwood, T. M. Nutrient solution culture of greenhouse crops. *Indiana Agric. Expt. Sta. Circ.* 277, 1943, pp. 27. E.S.R. 88 (763).
- 635.98-1.67**—Post, K. Automatic watering of experimental plots. *Plant Physiol.* 16, 1941 (207-209).
- 635.98-1.67**—Jensch, K. ; Storck, A. Watering from below : a new technique of watering plants in horticultural and agricultural pot experiments. *Bodenk. PflErnähr.* 33, 1943 (249-256). [G.]
- 635.98-1.67**—Post, K. ; Seeley, J. G. Automatic watering of greenhouse crops. *Cornell Agric. Expt. Sta. Bull.* 793, 1943, pp. 26. VII,
- 635.98-1.81**—Darke, J. E. Manurial treatment of glasshouse crops. *Fruit-Grower* 91, 1941 (467-468). Biol. Abs. 16 (1878).
- 635.98-2.19 : 546.27**—Ark, P. A. ; Tompkins, C. M. The boron-deficiency disease of gloxinia and its control. *Phytopath.* 31, 1941 (467-469). IV,

## II. GEOGRAPHICAL BIBLIOGRAPHY

### (4) EUROPE

- (4)63**—Bär, K. Agriculture in our era. *ForschDienst.* 13, 1942 (249-258). [G.] V,
- (4)63**—Klauder, G. Possibilities of increasing agricultural productivity in south-eastern Europe. *ForschDienst.* 13, 1942 (268-291). [G.]
- (41)42:631.81**—Tropical Agriculture. Resources of manurial salt-ores in the British Empire. *Trop. Agric. Trin.* 18, 1941 (146). IV,
- (411)553.97**—Fraser, G. K. Peat deposits of Scotland. Part I. General account. *D.S.I.R. Geol. Surv. Gt. Britain Wartime Pamph.* 36, 1943, pp. 55.
- (411)63**—Paterson, W. G. R. Problems of Scottish agriculture. *Proc. Roy. Phil. Soc. Glasgow* 65, 1940-41 (96-103).
- (411)631.4 : 55**—Hart, R. Soil studies in relation to geology in an area in north-east Scotland. Part II. The soils and their development. *J. Agric. Sci.* 32, 1942 (373-388).
- (411)631.473**—Glentworth, R. Studies on the soils developed on basic igneous rocks in central Aberdeenshire. *Trans. Roy. Soc. Edinburgh* 61, 1944 (149-170). VII,
- (411)631.81**—Ogg, W. G. ; Stewart, A. B. Liming and manuring. *Scot. J. Agric.* 23, 1941 (145-156).



# BIBLIOGRAPHY OF SOIL SCIENCE

- (411)631.821.1—Ogg, W. G. The revival of liming. *Scot. J. Agric.* 23, 1942 (355-366).
- (411)631.821.1—Haldane, D.; Simpson, J. B. Lime-stones of Scotland. Area III. East-central Scotland. *D.S.I.R. Geol. Surv. Gt. Britain Wartime Pamph.* 13, 1942, pp. 30.
- (411)631.821.1—Haldane, D.; Hardie, H. G. M. Limestones of Scotland. Area VIII. Orkney and Shetland. *D.S.I.R. Geol. Surv. Gt. Britain Wartime Pamph.* 13, 1943, pp. 13.
- (411)631.85:355.01—Ogg, W. G.; Stewart, A. B. Phosphatic manuring in war time. *Scot. J. Agric.* 24, 1943 (118-120).
- (411)633.2.03-1.5—M'Dougal, A. R. Some practical experiences of grassland improvement. *Scot. J. Agric.* 23, 1940 (24-30). *Herb. Abs.* 10 (287).
- (411)633.2.03-1.5—Clouston, D. Improvement of heath and moorland grazings. *Scot. J. Agric.* 24, 1943 (104-112). *B.C.A.B. III*, 1944 (58).
- (411)634.9-1.4—Muir, A. Some forest soils of the north-east of Scotland and their chemical characters. *Forestry* 14, 1940 (71-80).
- (411)634.9-1.4—Muir, A.; Fraser, G. K.; Steven, H. M. The soils and vegetation of the Bin and Clashindarroch forests. *Trans. Roy. Soc. Edinburgh* 60, 1941 (233-341).
- (411)634.95-1.4 Steven, H. M. Choice of species in the north-east of Scotland on the basis of soil and vegetation types. *Forestry* 14, 1940 (81-85). *Biol. Abs.* 16 (486).
- (417)553.97—Pearsall, W. H.; Lind, E. M. A note on a Connemara bog type. *J. Ecol.* 29, 1941 (62-68).
- V, 5 (417)631.4—Gallagher, P. H.; Walsh, T. Characteristics of Irish soil types. Part I. *Proc. Roy. Irish Acad.* 47B, 1942 (205-249). *B.C.A.B. III*, 1942 (145).
- VII, 3 (417)631.851—Gallagher, P. H.; Walsh, T. The activation of Clare phosphate as a fertilizer. *Econ. Proc. Roy. Dublin Soc.* 3, 1943 (172-189).
- (417)632.19:631.811.9—Walsh, T. Soil fertility studies. Part I. Some aspects of soil fertility. *Irish J. Dept. Agric.* 39, 1942 (84-99).
- V, 2 (417)633.491-1.5—Drew, J. P.; Deasy, D. Potato growing in Ireland with particular reference to production for industrial purposes. *Irish J. Dept. Agric.* 38, 1941 (220-238).
- VI, 4 (42)63:33—Russell, E. J. Our agriculture: its relation to ourselves and others. *J. Roy. Soc. Arts* 91, 1943 (445-461).
- (42)631.4—Hopkins, J. S. The soils of Worcestershire. *Worcs. Agric. Chron.* 11, 1943 (71, 73, 75).
- (42)631.435.1:631.61—Watson, J. A. S. The reclamation of derelict sandy land. *J. Roy. Agric. Soc. England* 101, Pt. II, 1941 (62-70).
- (42)631.445.1:631.58—Fairfax-Blakeborough, J. Some aspects of Yorkshire hill and moorland farming. *J. Yorks. Agric. Soc.* 1939 (99-110).
- (42)631.452—Bates, G. H. Increasing the food output of Great Britain. *Chem. Indust.* 61, 1942 (505-508).
- (42)631.459—Morris, F. G. Severe erosion near Blaydon, County Durham. *Geog. J.* 100, 1942 (257-261).

# FERTILIZERS AND GENERAL AGRONOMY

- (42)631.58—Culpin, C. Ley farming at Whartons Park, Bewdley. *Worcs. Agric. Chron.* 10, 1942 (201, 203-205, 207).
- (42)631.58—Bates, G. H. Maintaining the ploughed-up area after the war. *J. Roy. Soc. Arts* 91, 1943 (235-243).
- (42)631.58—Findlay, D. H.; Creyke, T. C. From grass to arable in Leicestershire. *J. Min. Agric.* 49, 1943 (194-199).
- (42)631.58—Troup, L. G. Conversion of light grassland to arable. *J. Min. Agric.* 49, 1943 (200-203).
- (42)631.61—Holliday, R. The reclaiming and farming of 800 acres of Worcestershire. *Worcs. Agric. Chron.* 10, 1942 (191, 193, 195, 197, 199, 201).
- (42)631.61—Keith, J.; Garner, F. H.; Lewis, I. G. Experiences in land reclamation. *J. Roy. Agric. Soc. England* 103, 1942 (108-124).
- (42)631.61—Morris, F. W. From semi-derelict pasture to wheat and beans. *Worcs. Agric. Chron.* 10, 1942 (187, 189, 191).
- (42)631.61—Grafton, The Duke of. Experiences in land reclamation. Euston, Thetford. *J. Roy. Agric. Soc. England* 104, 1943 (85-89).
- (42)631.61—Horne, F. R. Experiences in land reclamation. VII, 2  
*Devon. J. Roy. Agric. Soc. England* 104, 1943 (90-100).
- (42)631.61—Proby, R. G. Methods and results of land reclamation in England. *J. Roy. Soc. Arts* 91, 1943 (397-410).
- (42)631.61—Savill, E. H.; Lindsay, R. Windsor Great Park VII, 2  
in wartime. *J. Roy. Agric. Soc. England* 104, 1943 (80-84).
- (42)631.61—Wood, R. C. Reclamation of derelict land in the Lickey area. *Worcs. Agric. Chron.* 11, 1943 (211, 213, 215, 217, 219).
- (42)631.62—Paul, H. J. Drainage problems in the watershed of the River Derwent. *J. Yorks. Agric. Soc.* 1939 (75-86).
- (42)631.62—Nicholson, H. H. The field drainage problem. *Agric. Prog.* 18, 1943 (22-27).
- (42)631.81—Ministry of Agriculture. Manures and manuring. *Min. Agric. Bull.* 36, 1940, pp. 101.
- (42)631.81—Russell, E. J. Rothamsted and its experimental station. *Agric. Hist.* 16, 1942 (161-183).
- (42)631.81 : 355.01—Crowther, E. M.; Yates, F. Fertilizer IV, 3  
policy in war-time: the fertilizer requirements of arable crops. *Emp. J. Expt. Agric.* 9, 1941 (77-97).
- (42)631.851—Hawkins, H. L. British phosphates. Part I. Phosphatic chalk of Taplow. *D.S.I.R. Geol. Surv. Gt. Britain Wartime Pamph.* 8, 1940, pp. 8.
- (42)631.851—Oakley, K. P.; Dines, H. G. British phosphates. Part II. Phosphorites of Lower Cretaceous age in Lincolnshire, and of Ordovician age in Montgomeryshire. *D.S.I.R. Geol. Surv. Gt. Britain Wartime Pamph.* 8, 1940, pp. 19.
- (42)631.851—Oakley, K. P. British phosphates. Part III. Lower Cretaceous phosphorites, Isle of Wight to Yorkshire, with supplementary notes on Lincolnshire. *D.S.I.R. Geol. Surv. Gt. Britain Wartime Pamph.* 8, 1941, pp. 29.
- (42)632.19 : 631.811.9—Davies, W. M. Minor elements and crop failures. *Agric. Prog.* 18, 1943 (28-33).
- (42)632.7—Finney, D. J. Recent developments in the wireworm survey. *Agric. Prog.* 18, 1943 (36-38).

# BIBLIOGRAPHY OF SOIL SCIENCE

- (42)633.2.03—Davies, W. The plough-up policy in relation to the fattening pasture districts. *J. Roy. Agric. Soc. England* 103, 1942 (125-135).
- (42)633.2.03-1.47—Davies, W. The grassland map of England and Wales. Explanatory notes. *J. Min. Agric.* 48, 1941 (112-121).
- (42)633.34-1.5—Mann, H. H. Soya bean culture in Great Britain. *Nature* 147, 1941 (660-662).
- (42)635.13-1.5—Clift, L. F. Carrot growing in the Astley and Stourport districts of Worcestershire. *Worcs. Agric. Chron.* 9, 1941 (97, 99).
- (42)631.47—Owen, A. E. Agricultural divisions of Wales. *Geography* 26, 1941 (69-76). Herb. Abs. 12 (115).
- (42)631.58—Ashby, A. W. Marginal and hill farming in Wales. *J. Min. Agric.* 50, 1943 (21-26).
- (42)631.61—Marriott, W. M.; Ellison, W. Land reclamation in Montgomeryshire. *J. Land Agents' Soc.* 41, 1942 (7-14).
- (42)631.61—Ellison, W. Land reclamation in Montgomeryshire. *Welsh J. Agric.* 17, 1943 (85-90). Herb. Abs. 13 (303).
- (42)631.61—Ellison, W. Experiences in land reclamation, Montgomeryshire. *J. Roy. Agric. Soc. England* 104, 1943 (100-111).
- (42)631.61—Marriott, W. M.; Ellison, W. Land reclamation in Montgomeryshire. Part II. *J. Land Agents' Soc.* 42, 1943 (78-90).
- (43)631.4—Pozdena, L.; Bartram, H. Meadow soils on the diluvial plain of eastern Germany. *Bodenk. PflErnähr.* 23, 1941 (263-281). [G.]
- (43)631.4—Schucht, F. The basalt and Bunter sandstone soils of the Rhön region. *Landw. Jahrb.* 90, 1941 (978-1018). [G.]
- (43)631.4—Nebelung, A. Notes on the climate and soil of Schleswig-Holstein. *Ernähr. Pfl.* 38, 1942 (55-57). [G.]
- (43)631.416—Hübner, W. The nutrient content of Mecklenburg soils in relation to geology and climate. *Bodenk. PflErnähr.* 18, 1940 (51-79). C.A. 35 (254). [G.]
- (43)631.416—Schmitt, L. The state of the special soil research on the systematic investigation of the calcium and phosphoric acid status of German soil. *ForschDienst. Sonderh.* 16, 1942 (75-78). C.A. 37 (2115).
- (43)631.416—Wittich, W. Nature and yield capacity of the sandy soils in the North German diluvial region. *Ztschr. Forst- u. Jagdw.* 74, 1942 (1-42). For. Abs. 4 (14). [G.]
- II, 3 (43)631.416—Herrmann, R. Results of soil investigations. *ForschDienst.* 16, 1943 (165-173). [G.]
- VI, 4 (43)631.416—Schmitt, L. New results of the special ordinance for soil investigations. *Bodenk. PflErnähr.* 29, 1943 (245-252). [G.]
- (43)631.416.4—Umberg, H. The potash content and requirements of soils in the Rhenish highlands. *Bodenk. PflErnähr.* 26, 1942 (309-317). [G.]
- II, 4 (43)631.416.846—Rinckleben, P. The magnesia content of soils in eastern Germany. *ForschDienst.* 17, 1944 (149-151). [G.]
- (43)631.417.2—Hock, A.; Kohl, F. The humus status of German soils. *ForschDienst.* 9, 1940 (141-170). [G.]

# FERTILIZERS AND GENERAL AGRONOMY

- (43)631.452—Schmitt, L. The performance of German soil during the last hundred years and its state of fertility under the influence of modern fertilizer practice. *ForschDienst.* 12, 1941 (1-36). C.A. 38 (2429). [G.] VII, 4
- (43)631.459—Ehrenberg, P. Occurrences of erosion in Silesia. *ForschDienst.* 13, 1942 (428-429). [G.]
- (43)631.584—Rheinwald, H. Investigations relating to the periods suitable for growing catch crops in central eastern Germany. *Landw. Jahrb.* 90, 1941 (821-870). [G.] V, 4
- (43)631.584—Roseveare, G. M. Rotations and catch crops in Germany. *Herb. Abs. Suppl.* 12, No. 2, 1942 (S1-S9).
- (43)631.584 : 633.17—Engelke, H. Investigations on catch crops at the Lauchstädt Experimental Farm, with special reference to sugar sorghum. *Landw. Jahrb.* 91, 1941 (547-575). [G.] V, 5
- (43)631.81—Hahne, A. Studies, from the commercial standpoint, of the development and organization of the German fertilizer industry. *Kühn-Archiv* 53, 1940 (141-222). *Ernähr. Pfl.* 38 (32). [G.] V, 5
- (43)631.81—Diekmann, J. A critical review of the consumption of artificial fertilizers. *Bodenk. PflErnähr.* 33, 1944 (325-360). [G.]
- (43)631.81 : 551.58—Esser, J. Relations between weather, manuring and yields in the Dikopshof permanent manurial experiments. *Landw. Jahrb.* 91, 1942 (642-686). [G.]
- (43)633.2.03-1.4 : 581.5—Feise, J. Plant associations in relation to soils of meadows in south Hanover. *J. Landw.* 88, 1941 (167-184). [G.]
- (43)633.491-1.5—Järvesoo, E. German potato-growing technique and the nature of the plant. *Agrooimia Tartu* No. 5, 1940 (367-375). *Hort. Abs.* 11 (118). IV, 5
- (43)633.491-1.5—Haag, A. Towards improvement of potato yields. *Mitt. Landw.* 56, 1941 (215-216). *ForschDienst.* 12 (38). [G.] V, 2
- (43)633.63-1.83—Geyer, B. Results of potash manurial trials with sugar beet in central Germany. *Zuckerriibenbau* 9, 1941 (105-110). *Ernähr. Pfl.* 38 (31). [G.]
- (43)633.842-1.5—Schuphan, W. Sweet pepper, one of our most valuable vegetables. *ForschDienst.* 12, 1941 (615-617). P.B.A. 12 (269).
- (43)634.8-1.4—Engels, O. The acid-base relation and the nutrient condition of Palatinate vineyards according to the investigations of the past five years (1936-40). *Wein u. Rebe* 23, 1941 (187-205). C.A. 37 (2115).
- (43)634.8-1.416—Engels, O. The chalk and nutrient content of Palatinate vineyard soil. *Wein u. Rebe* 24, 1942 (165-175). C.A. 38 (3403).
- (43)633.75-1.5—Heuser, W. Poppy growing in the lower Danube area. *Wien. Landw. Ztg.* 91, 1941 (28). *Hort. Abs.* 14 (31).
- (43)631.4 : 549—Pelšek, J. Mineral resources of the soil on the andesite of south-east Moravia. *Sborn. Čsl. Akad. Zeměd.* 15, 1940 (405-408). C.A. 38 (2151). VII, 4
- (43)631.4 : 549—Pelšek, J. Mineralogical analysis and value of the Saar mountain (N.W. Moravia) soil on serpentine. *Sborn. Čsl. Akad. Zeměd.* 17, 1942 (49-53). C.A. 37 (5815). VII, 1

# BIBLIOGRAPHY OF SOIL SCIENCE

- VII, 3 (437)631.445.53—Pelišek, J. The occurrence of solonets soils in southern Moravia. *Shorn. Čsl. Akad. Zeměd.* 16, 1941 (299-301). C.A. 37 (2857).
- (437)631.445.53—Pelišek, J. The distribution of soluble salts in the profiles of southern Moravian salt soils. *Shorn. Čsl. Akad. Zeměd.* 16, 1941 (301-304). C.A. 37 (2861).
- VII, 4 (437)631.445.6—Pelišek, J. The chemistry of the red earths (terra rossa) from Tischnowitz in Moravia. *Shorn. Čsl. Akad. Zeměd.* 16, 1941 (53-56). C.A. 38 (1985).
- VII, 2 (437)631.811.9—Novák, V.; Pelišek, J. The problem of the soil microelements. *Věst. Čsl. Akad. Zeměd.* 16, 1940 (252-257). C.A. 37 (3213).
- (438)631.47—Wiepking-Jürgensmann, H. F. What contribution can landscape moulding make to the care of the soil? *Bodenk. PflErnähr.* 29, 1943 (13-27). [G.]
- (438)631.615—Regel, C. Extensive reclamation of the low moors in the Pripet Marshes. *Angew. Bot.* 23, 1941 (361-405). *Herb. Abs.* 12 (122).
- (439)633.18-1.5—Monthly Bulletin of Agricultural Science and Practice. Rice-growing in Hungary. *Mo. Bull. Agric. Sci. Pract.* 33, 1942 (128T).
- (439)633.18-1.5 Repp-Nowosad, G. Rice cultivation in the Hungarian alkali plains. *ForschDienst.* 13, 1942 (430-436). [G.]
- (439)633.853.55 Jaki, M. The cultivation of *Ricinus* in Hungary. *Felté u. Seifen* 48, 1941 (290-291). *ForschDienst.* 13 (24).
- (44)631.4—Bordas, J. A study of soil types in the lower Rhone Valley. An example of cultivation on the basis of information provided by soil science. *Ann. Agron.* 11, 1941 (182-207). C.A. 37 (3867).
- VII, 3 (44)631.4—Liwerant, J. Alluvial soils of the Garonne Valley. *Ann. Agron.* 11, 1941 (59-82). C.A. 37 (709).
- (44)633.85-1.5 Garola, J. Cultivation of oil plants in Beauce. *C.R. Acad. Agric.* 28, 1942 (194-205). C.A. 37 (3870).
- (45)63—Sullam, V. B. Fundamentals of Italian agriculture. *Foreign Agric.* 7, 1943 (267-288).
- VII, 4 (45)631.4—Lippi-Boncambi, C. Some yellow soils in the region of Grosseto. *Atti Accad. Italia R.C. Cl. Sci. Fis.* 1, 1940 (776-781). C.A. 38 (2429).
- V, 4 (45)631.416.4 Morani, V.; Campanile, S. The potash requirements of Italian soils. *Bodenk. PflErnähr.* 27, 1942 (213-220). [G.]
- (45)631.51—Vitali, G. Tillage problems in Italy. *Ital. Agric.* 77, 1940 (231-242). *Biol. Abs.* 16 (725).
- (458)63—Basile, D. G. Agricultural Sicily. *Econ. Geog.* 17, 1941 (109-120).
- (458)63—Sullam, V. B. The agriculture of Sicily. *Foreign Agric.* 7, 1943 (219-240).
- VII, 4 (46)553.97—Tamés, C. A contribution to the study of the possible influence of climate on some characteristics of Spanish peats. *Bol. Inst. Investig. Agron. Madrid* No. 10, 1944 (177-191). [Sp.f.e.g.]

# FERTILIZERS AND GENERAL AGRONOMY

- (46)631.4—Esteban, A. M. A contribution to the study of the soils of María de Huerva, Zaragoza. *Bol. Inst. Investig. Agron. Madrid* No. 10, 1944 (261-271). [Sp.]
- (46)631.4 : 581.5—Rivas, S. The flora of the Madrid Province and its ecology in relation to soils. *An. Inst. Edafol.* 1, 1942 (273-294). [Sp.e.]
- (46)631.414.2 : 549—Hoyos, A. X-ray analysis of some Spanish clays. *An. Inst. Edafol.* 1, 1942 (121-256). [Sp.g.] VII, 2
- (46)631.415.3—Díaz y Muñoz, J.; Tarnés, C. Some agricultural characteristics of the soils of Lake Nava and bordering the Tierra de Campos (Palencia). *Inst. Nacl. Investig. Agron. Cuad.* 1, 1941, pp. 89. [Sp.]
- (46)631.417—Llorente, T. A. Investigation of the organic matter of Spanish soils. *An. Inst. Edafol.* 2, 1943 (5-111). [Sp.g.]
- (46)633.71-1.4—Mira, E. A.; Bores, M. S. Some agrological characteristics of the tobacco-growing regions of Spain. Zone 2 (Granada). *Bol. Inst. Investig. Agron. Madrid* No. 10, 1944 (73-92). [Sp.] VII, 4
- (46)633.75-1.81—Box, M. M.; Serranillos, M. G. A contribution to the study of opium in Spain. *Bol. Inst. Investig. Agron. Madrid* No. 7, 1942 (201-212). [Sp.g.f.e.]
- (46)634.31-1.4—Herrero Egaña, M.; Acerete Lavilla, A. Analysis of nutritive elements in the fruit, flower and shoot of the orange. *Bol. Inst. Investig. Agron. Madrid* 2, 1939 (107-193). *Hort. Abs.* 11 (130). [Sp.f.]
- (46)634.31-1.4—Herrero Egaña, M.; Acerete Lavilla, A. Data on the soils of Carcagente. *Inst. Nacl. Investig. Agron. Cuad.* 7, 1941, pp. 24. [Sp.e.f.] V, 1
- (46)631.4—Da Costa, J. V. B.; D'Oliveira, A. J. S. Agrological aspects of the Leomil depression. *Rev. Agron. Lisboa* 29, 1941 (1-16). [Pt.]
- (46)631.4—Gouveia, D. H. G. The Almoester and Albergaria soils; a preliminary study of their clays. *Univ. Téc. Lisboa* 1943, pp. 55. [Pt.e.]
- (46)631.4—Valente-Almeida, L. A. Soil research in Portugal. *Bodenh. Pflernähr.* 29, 1943 (41-49). [G.]
- (46)631.445.4—Bramão, L. The presence of chernozem soil in Portugal. *Agron. Lusit.* 3, 1941 (215-225). [Pt.e.]
- (46)631.459—Bramão, L. The protection of the soil. *Rev. Agron. Lisboa* 28, 1940 (168-187). *Herb. Abs.* 11 (41).
- (46)631.473—Teixeira, A. J. da Silva. Partial map of the soils of Caia with explanatory text. *Rev. Agron. Lisboa* 30, 1943 (281-366). [Pt.]
- (46)633.2.03—Torres, A. B. M. The natural grasslands and bogs of the Serra da Estrêla in the Manteigas district. Contribution to a knowledge of their floristic composition. *Rev. Agron. Lisboa* 27, 1939 (242-271). *Herb. Abs.* 11 (145).
- (47)631.4—Blagovidov, N. L. Soils of the north-western part of European U.S.S.R. *Dokuchaev Inst. Soils U.S.S.R.* 2, 1939 (137-178). *C.A.* 34 (6743).
- (47)631.4—Gerasimov, I. P. Soils of the near-Caspian lowlands. *Dokuchaev Inst. Soils U.S.S.R.* 3, 1939 (277-296). *C.A.* 34 (6744).

# BIBLIOGRAPHY OF SOIL SCIENCE

- (47)631.4—Liverovsky, Yu. A. Soils of the north-eastern part of European U.S.S.R. *Dokuchaev Inst. Soils U.S.S.R.* 2, 1939 (9-78, 79-104, 105-136). C.A. 34 (6743).
- (47)631.4—Liverovsky, Yu. A. Soils of the Volga-Kama forest region. *Dokuchaev Inst. Soils U.S.S.R.* 2, 1939 (255-288). C.A. 34 (6745).
- (47)631.4—Malandin, G. A. The soils of the central cis-Ural region. *Dokuchaev Inst. Soils U.S.S.R.* 3, 1939 (255-288). C.A. 34 (6745).
- (47)631.4—Nozhin, L. L. Soils of the central forest region. *Dokuchaev Inst. Soils U.S.S.R.* 2, 1939 (179-215). C.A. 34 (6744).
- (47)631.4—Petrov, B. F. Soils of the Turukhan region. *Probl. Sovet. Pochvoved.* No. 7, 1939 (51-66). C.A. 36 (1128).
- (47)631.4—Prasolov, L. I. Soils of the trans-Volga region. *Dokuchaev Inst. Soils U.S.S.R.* 3, 1939 (237-275). C.A. 34 (6745).
- (47)631.4—Rozov, N. N. Soils of the central forest-steppe region. *Dokuchaev Inst. Soils U.S.S.R.* 3, 1939 (85-128). C.A. 34 (6745).
- (47)631.4—Rozov, N. N. Soils of the Volga-Kama forest-steppe region. *Dokuchaev Inst. Soils U.S.S.R.* 3, 1939 (179-325). C.A. 34 (6745).
- (47)631.4—Sobolev, S. S. Soils of the Ukraine and of the steppe region of the Crimea. *Dokuchaev Inst. Soils U.S.S.R.* 3, 1939 (7-84). C.A. 34 (6745).
- (47)631.4—Zakharov, S. A. Soils of the cis-Caucasian region. *Dokuchaev Inst. Soils U.S.S.R.* 3, 1939 (297-355). C.A. 34 (6744).
- (47)631.4—Letunov, P. A. Soils of the Volga-Akhtubinsk Valley and the delta of the Volga. *Shorn. Pam. W. R. Williams*, 1942 (433-481). [R.]
- II, 4 (47)631.4—Prasolov, L. I. Contemporary problems of soil science. *Priroda* No. 4, 1943 (36-40). [R.]
- VII, 2 (47)631.415.3—Grin, G. S. The reasons for and the sources of the salinization of soils in the central Dnieper region of the Ukrainian S.S.R. *Zap. Kharkov. S.-Kh. Inst.* 2, No. 1-2, 1939 (143-226). C.A. 37 (2859).
- (47)631.415.3—Kovda, V. A. Problems of salinization and desalinization of soils of the Caspian plain in connexion with its irrigation. *Pedology* No. 5, 1941 (3-19). [R.g.]
- V, 3 (47)631.415.3—Taranets, T. P. Saline soils of the Azov-Black Sea coast. *Pedology* No. 4, 1941 (3-19). [R.g.]
- (47)631.415.3—Sokolovsky, A. N. The problem of the Middle Dnieper. *Zap. Kharkov. Ord. Trudov. Kras. Znam. S.-Kh. Inst.* 1941 (17-43). [R.e.]
- VI, 3 (47)631.416.846—Smirnov-Loginov, V. P.; Efendi-Zade, E. The role of absorbed magnesium in the "tugai" soils of Azerbaidzhan. *Izv. Azerbaidzhan. Fil. Akad. Nauk* No. 1-2, 1939 (85-96). C.A. 36 (1428).
- (47)631.459—Manilov, N. Nature of erosion phenomena in the Don district of the Stalingrad region. *Pedology* No. 8, 1939 (98-104). [R.]
- (47)631.459—Egorov, V. V. Soil-erosion processes under the forest-steppe conditions of the Moscow region. *Pedology* No. 11, 1940 (41-48). [R.]

# FERTILIZERS AND GENERAL AGRONOMY

- (47)631.459--Sobolev, S. S. Soil-erosion regions of the European plain of the U.S.S.R. *Probl. Sovet. Pochved.* 11, 1940 (66-115). [R.]
- (47)631.459 : 631.61--Sobolev, S. S. New data on erosion control in the plains of the U.S.S.R. *Pedology* No. 10, 1940 (99-104). [R.]
- (47)631.459 : 631.61--Zakharov, P. G. Agrotechnical measures of erosion control in the central forest-steppe regions. *Pedology* No. 4, 1940 (62-70). [R.e.]
- (47)631.459 : 631.61--Bally, W. Soil deterioration and soil conservation in the Union of Soviet Socialist Republics. *Mo. Bull. Agric. Sci. Pract.* 34, 1943 (377-707). V, 2
- (47)631.851 : 546.27--Volodchenkova, A. I.; Melentiev, B. N. Boron in Chibiny apatites. *C.R. Acad. Sci. (U.S.S.R.)* 30, 1941 (140-143). [E.] V, 2
- (47)633.31-1.5--Nalivkin, A. Lucerne in the north. *Sovet. Agron.* No. 10/11, 1939 (45-47). Herb. Abs. 10 (305). IV, 2
- (47)633.72-1.5--Chkhaldze, I. Tea cultivation in the Krasnodar District. *Sovet. Subtrop.* No. 4, 1940 (48-51). Hort. Abs. 10 (287). [R.]
- (47)633.854.56-1.4--Kibardin, R. E.; Skorobogatov, M. E. Tung oil trees on the southern slopes of the Caucasian mountains. *Sovet. Subtrop.* No. 4, 1940 (51-53). [R.] IV, 1
- (47)633.913-1.5--Lepa, P. Russian experience with rubber plants. *Sovet. Agron.* No. 1, 1940 (86-93). Hort. Abs. 10 (375). [R.]
- (47)631.414.2 : 631.414.324--Aarnio, B. The clays of Finland and their properties. II. The exchangeable bases. *Agrogeol. Juh.* No. 53, 1942, pp. 24. C.A. 38 (3572). VII, 4
- (47)631.48--Aaltonen, V. T. Soil formation in Finland. *Bodenk. Pflernähr.* 21 22, 1940 (142-154). C.A. 37 (6387). VII, 2
- (47)634.9-1.4--Aaltonen, V. T. The Finnish forest soils according to the second survey in Finland. *Commun. Inst. Forest. Finn.* 29, No. 5, 1941 (1-71). For. Abs. 5 (162). [Fig.]
- (474.2)631.851--Rozin, M. S. The mineral raw materials of the Estonian S.S.R. *Gorn. Zh.* 116, No. 10/11, 1940 (1-4). C.A. 37 (3373).
- (485)63--Hovgard, A. Trends in agricultural production. *Kgl. Lanthr.Akad. Tidskr.* 81, 1942 (235-249). [Sw.g.] VI, 3
- (485)631.4--Ekström, G. The cultivated moraine soils in Scania. *Soil Res.* 7, 1940 (40-52). C.A. 34 (7505).
- (485)631.4--Eriksson, S.; Gustafsson, Y. Swedish work in soil science 1929-1938. *Soil Res.* 7, 1940 (72-84). C.A. 34 (7503). [G.]
- (485)631.4--Lundqvist, G. Minerogenic soil varieties of Bergslagen. *Sverig.Geol. Unders. Arsh.* 34, No. 3, 1940, pp. 87. [Sw.]
- (485)631.473--Torstensson, G.; Eriksson, S. Agronomic maps of the Ultuna estate. *LanthrHögsk. Inst. Allm. JordbrLära.* 1941, pp. 16. [Sw.]
- (485)631.84--Akerman, A.; Nilsson-Leissner, G., et al. Combined variety and nitrogenous manurial trials carried out by the Swedish Seed Association during the years 1927-1939. *Sverig. Utsädesfören. Tidskr.* 50, 1940 (231-262). Herb. Abs. 11 (144). [Sw.g.]



# BIBLIOGRAPHY OF SOIL SCIENCE

- (485)631.851—Nordengren, S. The occurrence of phosphate in Sweden and its utilization. *Tek. Tid.* 71, Kemi 1941 (53-56, 64-68). C.A. 37 (1818).
- (485)633.2.03-1.81—Glöbel, G. Pasture fertilizing. *Svenska Vall- o. Mossköfören. Kvartalskr.* 3, 1941 (3-14). [Sw.]
- (485)634.9-1.44—Sandberg, G. Forest types and choice of ground for cultivated pastures in Norrland. Observations and preliminary conclusions during a study tour in the Lapp territory of Västerbotten. *Svenska Vall- o. Mossköfören. Kvartalskr.* 4, 1942 (159-181). For. Abs. 4 (263). [Sw.]
- (492)631.47—Crone, G. R. Notes on agriculture in the Low Countries. *Geog. J.* 100, 1942 (235-244).
- (492)633.71-1.5—Croesen, V. R. I. Tobacco cultivation in Holland. *Landbouwk. Tijdschr.* 52, 1940 (145-164, 213-233). P.B.A. 12 (266).
- (494)631.416 ; 551.41—Albareda, J. M. Mountain soils. *Estud. Geog.* 2, 1941 (679-691). [Sp.]
- (494)631.47—Frey-Wyssling, A. Increased cultivation in Switzerland. *Chron. Bot.* 7, 1943 (340). Herb. Abs. 14 (6).
- (494)631.61—Strüby, A. The importance of land reclamation schemes in relation to cropping plans and employment problems. Summarized report of the extraordinary Improvement Programmes of 11th February 1941 and 17th April 1942. *Landw. Jahrb. Schweiz* 56, 1942 (315-343). [G.]
- (495)63—Whipple, C. E. The agriculture of Crete. *Foreign Agric.* 7, 1943 (212-216).
- (495)63—Whipple, C. E. The agriculture of Greece. *Foreign Agric.* 8, 1944 (75-96).
- (495)631.436—Findiklis, T. T. The temperature of the soil in Greece. The temperature of the soil at Athens. *Agric. Meteor. Sect. Govt. Greece* 1, Sect. B., 1940, pp. 96. Biol. Abs. 16 (316). [Gr.f.]
- (495)631.459—Nevros, K. I. Soil erosion in Greece. *Soil Conservation* 6, 1940 (129). Herb. Abs. 11 (197).
- IV, 5 (497.1)631.851—Gračanin, M. The fertilizer value of the phosphoric acid of Dalmatian phosphorites. *Arkh. Min. Pol'opriv.* 4, No. 8, 1937 (3-44). C.A. 35 (4142).
- VI, 4 (498)63—Marx, A. South Bessarabian soils in relation to their agricultural utilization. *Bodenk. Pflernähr.* 29, 1943 (75-93). [G.]
- IV, 4 (498)631.416—Ionescu-Sisești, G.; Valuta, I. State of fertility of certain soil types in Rumania and the need for enriching them. Experiments of 1933-1938 by the plant-physiological method. *An. Inst. Cerc. Agron. Român.* (1939) 11, 1940 (3-96). [Rm.g.]
- VI, 2 (498)631.81—Safta, I. New trends in Rumanian agriculture. *Pflanzenbau* 16, 1939 (122-126). [G.]

## (5) ASIA

- (51)631.4—Chieh, L. L. Soils of Liuchianghsien, Kwangsi. *Natl. Geol. Surv. China Soil Bull.* 20, 1940, pp. 50. C.A. 34 (8135). [Ch.e.]
- (51)631.4—Lee, C. K. Chemical characteristics of some important soil types in China. *J. Chinese Chem. Soc.* 8, 1941 (160-169). B.C.A.B. III, 1943 (198).

# FERTILIZERS AND GENERAL AGRONOMY

- (51)631.4—Liu, H. P. Soils of Chengtu and Hwayang area, Szechuan. *Natl. Geol. Surv. China Soil Bull.* 23, 1941, pp. 34. [Ch.e.]
- (51)631.4—Wu, P. C.; Chu, S. M.; Fu, H. D. Soils of the Taiho area. *Soil Mem. Geol. Surv. Kiangsi* No. 1, 1941 (157-188). [Ch.e.]
- (51)631.4—Chenfeng, K. Some characteristics of yellow podzolic soils in Chungking, Szechwan. *J. Agric. Assoc. China* (59-63); *Abs. ibid.* No. 175, 1943 (IV-V).
- (51)631.44—Seki, T. On James Thorp's classification of the soils of China. *J. Sci. Soil Japan* 14, 1940 (205-210, 327-334). [J.]
- (51)631.44—Lee, C. K. Chemical characteristics of the great soil groups of China. *Soil Sci.* 55, 1943 (343-349).
- (51)631.459—Thorp, J. Soil conditions and land use in China. *Proc. Sixth Pacific Sci. Cong.* 4, 1940 (921-931). *Herb. Abs.* 12 (116).
- (51)631.459—Thorp, J. Soil changes resulting from long use of land in China. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (393-398).
- (51)631.459—Tieh, T. M. Soil erosion in China. *Geog. Rev.* 31, 1941 (570-590). *E.S.R.* 86 (745).
- (51)631.459—Lowdermilk, W. C.; Wickes, D. R. China and America against soil erosion. I. The fate of conservation in Northern Shansi. II. Losses and gains. *Sci. Mo. New York* 56, 1943 (393-413, 505-520). *Biol. Abs.* 18 (173).
- (51)631.467.1—Gaw, H. Z. Soil protozoa in some Chinese soils. *Nature* 147, 1941 (390).
- (51)631.811—Chang, N. F.; Richardson, H. L. Soil fertility and manuring in China. *Science* 95, 1942 (601-602).
- (51)631.851—Wang, H. H.; Chung, T. S. Composition of Yunnan phosphate. *J. Chem. Engng. China* 7, 1940 (17-22). B.C.A.B. I, 1942 (228).
- (51)633.854.56—Chiang-kwoh, Y. The tung region of China. *Econ. Geog.* 19, 1943 (418-427).
- (51)631.415.3—Ikeda, M. Studies of soils containing alkali and alkaline earth salts in Manchoukuo. VII. Habitation soils in Chaotungshien and Antahsien, Pinciangsheng Province. *Manchoukuo Agric. Expt. Sta. Res. Bull.* 33, 1940 (39-48). [J.]
- (51)631.415.3—Ikeda, M.; Hosika, T. Studies of soils containing alkali and alkaline earth salts in Manchoukuo. VIII. Vegetation and alkali salts in soils. *Manchoukuo Agric. Expt. Sta. Res. Bull.* 33, 1940 (49-58). [J.]
- (51)631.415.3—Kawashima, R.; Nagata, M. The colloidal clay in solonchak and solonets soils in Manchuria. *J. Agric. Chem. Soc. Japan* 17, 1941 (394-395). [J.e.]
- (51)631.473—Nagata, T. Report on the soil survey of North Manchuria. (I), (II), (III). *J. Sci. Soil Japan* 14, 1940 (531-536, 567-586, 631-648). [J.]
- (51)631.415.1—Misu, H. The exchange acidity and pH of soils in Chosen. (II), (III), (IV). *J. Sci. Soil Japan* 14, 1940 (503-520, 555-566, 607-621). [J.]
- (51)631.445.6—Kawamura, K.; Inagaki, T. Soils similar to terra rossa in western Chosen. *J. Sci. Soil Japan* 15, 1941 (217-226). C.A. 35 (5231).
- (52)63—Struthers, J. Japan's agriculture. *J. Min. Agric.* 51, 1944 (63-67).

V, 4

# BIBLIOGRAPHY OF SOIL SCIENCE

- (52)631.4—Kawamura, K.; Inagaki, T. The soils of the Saipan, Tenian and Rota Islands, Mariana. *J. Sci. Soil Japan* 14, 1940 (469-484). C.A. 35 (551).
- IV, 2 (52)631.4—Kawamura, K.; Tanaka, T. The soils of the Saipan, Tenian and Rota Islands, Mariana. I. Field survey and mechanical analysis. *J. Sci. Soil Japan* 14, 1940 (439-458). C.A. 34 (7504).
- (52)631.411.4—Kawashima, R.; Nagata, M.; Suyama, G. The enclosed and reclaimed marsh soils on the coast of Kyushu II. *J. Sci. Soil Japan* 14, 1940 (485-492). C.A. 35 (552).
- (52)631.411.4—Kawashima, R.; Nagata, M.; Suyama, G. The enclosed and reclaimed marsh soil on the coast of Kyushu. III. *J. Sci. Soil Japan* 15, 1940 (547-554). [J.]
- (52)631.416:552.323—Yamada, S. Soil survey of volcanicogenous soils. I, II. *J. Sci. Soil Japan* 14, 1940 (673-702, 747-762). [J.]
- (52)631.436—Yakuwa, R. Soil temperature in Sapporo. *J. Met. Soc. Japan* 18, 1940 (2). Bib. Met. Lit. 4 (468). [J.g.]
- (52)631.44—Araki, M. The mode of formation and classification of soils in Toyama Prefecture. I. *J. Sci. Soil Japan* 14, 1940 (777-788). [J.]
- IV, 6 (52)631.44—Kamoshita, Y. The soil types of the Tuguru Plain, Aomori Prefecture, Nippon. *J. Imp. Agric. Expt. Sta. Nisugahara* 3, 1940 (401-420). [J.e.]
- VI, 3 (52)631.445.3—Kamoshita, Y. Wet forest soil. *J. Sci. Soil Japan* 15, 1941 (145-152). C.A. 35 (5231).
- (52)631.445.3—Kawashima, R.; Nagata, M.; Suyama, G. The forest soil type in the north-east of Honshu, Japan. *J. Sci. Soil Japan* 15, 1941 (28-42). [J.]
- (52)631.445.7—Nagata, T. Yellow earths of upland soils at Tainan, Formosa. *J. Soc. Trop. Agric. Taiwan* 11, 1939 (252-257). C.A. 34 (5983).
- (52)631.461—Adati, M.; Yosimura, S.; Miyasaka, S. Microbiological studies on soils in Formosa. XI. Microbiological properties of the mountain soils. Preliminary report. *J. Soc. Trop. Agric. Taiwan* 11, 1939 (246-251). C.A. 34 (5986).
- (52)631.81—Hanada, M. The special manure of Saga Prefecture. I. *J. Sci. Soil Japan* 15, 1941 (43-50). [J.]
- (52)634.3-1.4—Morita, S. Studies on citrus garden soil in Japan. III. The soils of citrus gardens in Kanagawa Prefecture. *J. Sci. Soil Japan* 15, 1941 (51-62). [J.e.]
- (52)634.3-1.4—Morita, S. Citrus garden soil in Japan. IV. The soils of a citrus garden in Ehime Prefecture. *J. Sci. Soil Japan* 15, 1941 (365-377). C.A. 36 (1128).
- VII, 3 (534.5)631.586—Hartley, B. J. Dry farming in the Aden Protectorate. *Proc. Conf. Middle East Agric. Devt. Cairo*, 1944 (37-42).
- IV, 1 (54)631.4—Akhaury, B. P. Bihar. *Indian Farm*, 1, 1940 (400-402).
- IV, 1 (54)631.4—Baig, M. M. Hyderabad State. *Indian Farm*, 1, 1940 (402-403).

# FERTILIZERS AND GENERAL AGRONOMY

- (54)631.4--Mukerji, B. K. ; Das, N. K. Studies on Kumaun hill soils. I. Soil survey at the Government Orchard, Chaubattia : Formation of genetic groups. *Indian J. Agric. Sci.* 10, 1940 (990-1020). IV, 3
- (54)631.4--Mukerji, B. K. ; Das, N. K. Studies in Kumaun hill soils. III. Soil types at Doonagiri. *Indian J. Agric. Sci.* 12, 1942 (313-322). V, 6
- (54)631.4--Bal, D. V. The soils of the Central Provinces and Berar. *Indian Soc. Soil Sci. Calcutta* 1943, pp. 9.
- (54)631.415.3--Talati, R. P. Damaged lands in the Deccan and their classification. *Indian J. Agric. Sci.* 11, 1941 (959-977).
- (54)631.415.36--Joachim, A. W. R. The alkali soil problem and reclamation methods in India and Ceylon. *Trop. Agriculst.* 97, 1941 (202-214).
- (54)631.459 : 631.61--Glover, H. M. Erosion in the cultivated uplands of the North Punjab and its cure. *Lahore* 1941, pp. 18. V, 5
- (54)631.459 : 631.61--Gorrie, R. M. Land management in the Punjab foothills. *Lahore* 1941, pp. 78.
- (54)631.473--Mukerji, B. K. ; Mukerji, P. Preliminary survey of sugar-cane soils in the United Provinces. *Proc. Ann. Cong. Sug. Tech. Assoc. India* 10, Part 2, 1941 (57-78). C.A. 37 (4844).
- (54)631.473--Viswa Nath, B. All-India soil survey. *Curr. Sci.* 10, 1941 (67-69).
- (54)631.584--Ayyangar, G. N. R. Mixed cropping in India. *Indian Farm.* 3, 1942 (255-260).
- (54)631.586--Burns, W. The desert edge of Indian agriculture. *Indian Farm.* 2, 1941 (509-513).
- (54)631.67--Parr, C. H. Flood water farming. *Indian Farm.* 4, 1943 (510-517). VII, 3
- (54)631.67--Parr, C. H. Wasted water and wasted land. *Indian Farm.* 4, 1943 (121-127). VI, 4
- (54)631.84--Gokhale, V. G. ; Gaywala, P. M. Place of nitrogenous fertilizers for Deccan crops. *J. Univ. Bombay* 11B, Part 5, 1943 (1-33). C.A. 38 (1063).
- (54)631.879.2 Kulkarni, D. G. The Poona sewage and its utilization as fertilizer. *Poona Agric. Coll. Mag.* 33, 1941 (109-116). C.A. 36 (4655).
- (54)633.18-1.5--Thimlah, A. C. Paddy growing in Coorg. *Indian Farm.* 2, 1941 (351-353).
- (54)633.18-1.5--Mitra, A. K. ; Gupta, P. S. Rice in the United Provinces. *Indian Farm.* 3, 1942 (482-485).
- (54)633.2.03-1.5--Woodford, R. C. Improvement of grazing grounds in Assam. *Indian Farm.* 3, 1942 (428-429).
- (54)633.377-1.5--Chose, T. B. A note on derris and other rotenone-bearing vegetable insecticides, their occurrence and possibilities of cultivation in India. *Indian Forester Leaflet (Chem.)* No. 20, 1942, pp. 9. For. Abs. 4 (183).
- (54)633.51-1.67--Thomas, R. Cotton growing in Sind. *Indian Farm.* 1, 1940 (369-372).
- (54)633.61-1.5--Imperial Council of Agricultural Research. Some practical results of sugarcane research in India. *Imp. Council. Agric. Res. Misc. Bull.* 34, 1940, pp. 41.

# BIBLIOGRAPHY OF SOIL SCIENCE

- (54)633.61-1.5—**Joachim, A. W. R.** Sugar cane soils. manuring and irrigation in certain provinces of India. *Trop. Agricut.* 97, 1941 (335-350).
- (54)633.72-1.5—**Thomas, A. S.** Some lessons from a tour of the tea districts of India. *E. Afric. Agric. J.* 7, 1941 (24-32).
- (54)633.73-1.5—**Shetty, K. S.** Coffee in South India. *Madras Agric. J.* 27, 1939 (388-400). *Biol. Abs.* 15 (2261).
- (54)633.854.56-1.5—**Laurie, M. V. ; Sen Gupta, J. N.** Notes on cultivation of tung-oil tree (*Aleurites* spp.) in India. *Indian Forest Rec. Silvicult.* 4, 1941 (133-159). *Hort. Abs.* 12 (48).
- (54)633.885.1-1.5—**Wilson, A.** Report on the prospects of cinchona cultivation in India. *Imp. Counc. Agric. Res. Misc. Bull.* 29, 1939, pp. 121. *E.S.R.* 86 (196).
- IV, 5 (54)633.887.791-1.5—**Covell, G.** The cultivation of pyrethrum in India. *Plant. Chron.* 35, 1940 (370-371). *Hort. Abs.* 11 (46).
- (54)633.887.791-1.5—**Burns, W.** The growing of pyrethrum in India. *Indian Farm.* 2, 1941 (58-60).
- (54)633.887.791-1.5—**Fotidar, M. R.** Pyrethrum in Kashmir. *Indian Farm.* 2, 1941 (413-415).
- VII, 3 (54)633.887.791-1.5—**Science and Culture.** Pyrethrum cultivation in India. *Science and Culture* 9, 1943 (72-73). *Biol. Abs.* 18 (804).
- (54)633.912-1.5—**John, P. K.** Cultivation of *Hevea brasiliensis* in India. *Plant. Chron.* 38, 1943 (48-50). *Hort. Abs.* 13 (198).
- (54)633.912-1.5—**John, K.** Rubber in Travancore. *Indian Farm.* 4, 1943 (270-272).
- (54)634-1.5—**Haye, K. A.** Fruit culture in Baluchistan. *Punjab Fruit J.* 6, 1942 (1210-1212). *Hort. Abs.* 13 (129).
- (54)634.25-1.5—**Mustafa, A. M.** Peach growing in Baluchistan. *Indian Farm.* 2, 1941 (124-126).
- (54)634.55-1.5—**Mustafa, A. M. ; Janjua, N. A.** Almond growing in Baluchistan. *Indian Farm.* 3, 1942 (539-542).
- (54)634.771-1.5—**Bhat, S. S.** The Basrai banana in Baroda. *Indian Farm.* 3, 1942 (588-589).
- (54)634.8-1.5—**Ginal, M. A.** Grape-growing in Baluchistan. *Imp. Counc. Agric. Res. Misc. Bull.* 40, 1941, pp. 16.
- (54)635-1.5—**Desai, H. M.** Scope of improvement in the technique of cultivation of some of the important garden crops under the Poona conditions. *Bombay Dept. Agric. Bull.* (1939) 183, 1940, pp. 27. *Biol. Abs.* 15 (989).
- (548.7)581.5—**De Rosayro, R. A.** The soils and ecology of the wet evergreen forests of Ceylon—II. *Trop. Agricut.* 98, No. 3, 1942 (13-35).
- (548.7)63—**Ladejinsky, W. I.** Agriculture in Ceylon. *Foreign Agric.* 8, 1944 (3-20).
- (548.7)631.4—**Joachim, A. W. R. ; Kandiah, S.** Studies on Ceylon soils. XIII. Some forest and other characteristic soil types of the wet and dry zones. *Trop. Agricut.* 95, 1940 (268-277).
- IV, 5 (548.7)631.4—**Joachim, A. W. R. ; Kandiah, S.** Studies on Ceylon soils. XV. The composition of some local laterites (caboos), soil concretions and clays. *Trop. Agricut.* 96, 1941 (67-75).

# FERTILIZERS AND GENERAL AGRONOMY

- (548.7)631.4—De Rosayro, R. A. The soils and ecology of the wet evergreen forests of Ceylon—I. *Trop. Agrist.* 98, No. 2, 1942 (4-14).
- (548.7)631.4—Joachim, A. W. R.; Kandiah, S. Studies on Ceylon soils. XVI. The chemical and physical characteristics of the soils of adjacent contrasting vegetation formations. *Trop. Agrist.* 98, No. 2, 1942 (15-30). VI, 4
- (548.7)631.459 : 631.61—Lester-Smith, W. C. Soil conservation problems on small-holdings in Ceylon. *Rubber Res. Scheme (Ceylon) Quart. Circ.* 17, 1940 (118-130).
- (548.7)631.81—Norris, R. V. Fertiliser rationing and distribution. Interim report. *Tea Quart.* 16, 1943 (1-5). VI, 4
- (548.7)631.853—Salgado, M. L. M. The phosphate content of local iron slags. *Trop. Agrist.* 95, 1940 (186-197). IV, 3
- (548.7)633.18-1.5—Molegode, W. Paddy cultivation in Kandy. *Trop. Agrist.* 99, No. 13, 1943 (152-156).
- (548.7)633.51-1.5—Haigh, J. C. Cotton cultivation in Ceylon. *Trop. Agrist.* 97, 1941 (190-201).
- (548.7)633.51-1.81—Haigh, J. C. Trials with cotton in Ceylon. *Trop. Agrist.* 95, 1940 (212-217).
- (548.7)633.912-1.5—Rubber Research Scheme, Ceylon. Increasing the crops from Ceylon rubber estates. *Trop. Agrist.* 97, 1941 (328-334). *Rubber Res. Scheme (Ceylon) Adv. Circ.* 16, 1942, pp. 5.
- (548.7)633.912-1.5—O'Brien, T. E. H. Rubber investigations in Ceylon. *Emp. J. Expt. Agric.* 10, 1942 (61-75).
- (548.7)635-1.5—Rubber Research Scheme (Ceylon). Cultivation of food crops in young rubber areas. *Rubber Res. Scheme (Ceylon) Adv. Circ.* 15, 1941, pp. 2.
- (55)63—Pittman, D. W. Observations on agriculture in Iran. *Farm and Home Sci.* 4, No. 4, 1943 (6-7). Biol. Abs. 18 (577).
- (55)63—Tannous, A. I. Agricultural production and food consumption in Iran. *Foreign Agric.* 8, 1944 (27-42).
- (55)631.61—Bailey, G. L. Some difficulties in land reclamation—an example from southern Persia. *Proc. Conf. Middle East Agric. Devt. Cairo*, 1944 (51-59).
- (56)631.4—Lorenz, R. The colloid chemistry of soil types of Asia Minor. *Kolloid-Ztschr.* 103, 1943 (171-180). [G.] VII, 1
- (56)634.8-1.5—Oraman, N. Conditions for vine growing in the dry region of Central Anatolia. *Gartenbauwiss.* 14, 1940 (221-307). Hort. Abs. 11 (108).
- (564.3)631.459—Waterer, R. R. The problem of soil erosion and its control in Cyprus. *Proc. Conf. Middle East Agric. Devt. Cairo*, 1944 (78-82). VII, 3
- (564.3)631.459 : 631.61—McDonald, J. Soil conservation in the farming areas of Cyprus. *Proc. Conf. Middle East Agric. Devt. Cairo*, 1944 (82-86). VII, 3
- (564.3)631.67—Raeburn, C. Water supply in Cyprus. Development of minor irrigation supplies. *Proc. Conf. Middle East Agric. Devt. Cairo*, 1944 (12-15).
- (564.3)633.854.56-1.5—Willmott, S. G. Tung oil in Cyprus. *Bull. Imp. Inst.* 38, 1940 (409-418).

# BIBLIOGRAPHY OF SOIL SCIENCE

- (567)631.58—Garbutt, W. D. Large-scale production in the Middle Euphrates zone. *Proc. Conf. Middle East Agric. Devt. Cairo*, 1944 (61-65).
- IV, 4 (569)553.97—Reifenberg, A.; Moshicky, S. Palestine peat in relation to other peats. *Soil Sci.* 51, 1941 (173-180).
- VI, 4 (569)631.4; 581.5—Zohary, M. The vegetational aspect of Palestine soils. A preliminary account of the relations between vegetation and soils in Palestine. *Palestine J. Bot. (f)* 2, 1942 (200-246).
- VII, 3 (569)631.459—Sale, G. N. Soil erosion in Palestine. *Proc. Conf. Middle East Agric. Devt. Cairo*, 1944 (86-91).
- (569)631.47—Shaw, S. H.; Pharaon, N. H. Nablus-Tulkarm Valley. *Palestine Soil Conserv. Bd. Bull.* 1, [1944], pp. 20.
- (569)631.51 Capuler, B. Deep ploughing. *Hassadeh* 21, 1941 (395-397, 444-446). [Hb.]
- VII, 3 (569)631.586 Lowe, B. A. Dry farming in the Beershaba district of Palestine. *Proc. Conf. Middle East Agric. Devt. Cairo*, 1944 (29-33).
- VII, 3 (569)631.67—Stedman-Davies, D. Farm irrigation from wells and springs in Palestine. *Proc. Conf. Middle East Agric. Devt. Cairo*, 1944 (15-19).
- (569)633.2.03-1.67 Aronovitch, I. Irrigated permanent pastures. *Mo. Agric. Bull. Palestine* 1941 (215-219). *Herb. Abs.* 12 (127).
- (569)634-1.5 Monthly Agricultural Bulletin. Soil management in orchards. *Mo. Agric. Bull. Palestine* 1940 (92-95). *Hort. Abs.* 11 (106).
- VII, 3 (569)631.459 Najjar, H. Scrub destruction and soil erosion. *Proc. Conf. Middle East Agric. Devt. Cairo*, 1944 (92-94).
- VII, 3 (569)631.58 Wheeler, C. R. S. Large-scale farming in the northern Djezira of Syria. *Proc. Conf. Middle East Agric. Devt. Cairo*, 1944 (66-67).
- (569)631.67 Howard-Jones, G. Recent progress in irrigation in the Levant States. *Proc. Conf. Middle East Agric. Devt. Cairo*, 1944 (9-12).
- (57)63—Prasolov, L. I. Increasing the intensity of agriculture in the Eastern U.S.S.R. *Pedology* No. 5-6, 1942 (3-7). [R.e.]
- VII, 2 (57)631.4 Liakhov, A. I. Soils in the Igarka region and their properties. *Trudy Inst. Pol. Zemled.* No. 1, 1940 (7-56). *C.A.* 37 (4841).
- (57)631.4—Mershin, A. P. A study of the soils of the Khamtianssky district of the Omsk region. *Sborn. Pam. W. R. Williams*, 1942 (345-359). [R.]
- VII, 3 (57)631.44—Gerasimov, I. P.; Rozov, N. N. Fundamental questions of the geography of soils of western Siberia. *Probl. Sovet. Pochvoved.* 11, 1940 (37-64). [R.]
- IV, 4 (57)631.44—Koliago, S. A. The genesis and geography of the forest-steppe soils of the Ob plateau (Western Siberia). *Pedology* No. 11, 1940 (21-40). [R.]
- (57)631.44—Petrov, B. F. Soil zones of the southern part of the Krasnoyarsk region. *Pedology* No. 5, 1940 (3-15). [R.]

# FERTILIZERS AND GENERAL AGRONOMY

- (57)631.461—Pushkinskaia-Kuplenskaia, O. I. The microbiological characteristics of soils in the Igarka region. *Trudy Inst. Pol. Zemled.* No. 1, 1940 (89-108). C.A. 37 (4843).
- (573)631.4—Liverovsky, Yu. A. The soils of Kamchatka. *Kamchat. Shorn.* 1940 (127-156). C.A. 36 (7202).
- (584)63—Al'banov, D. Rural husbandry of Uzbekistan. *Sotsial. Sel'sk. Khoz.* No. 4, 1940 (109-116). Herb. Abs. 12 (58). V, 5
- (584)631.4—Nikitin, S. A. Soils and vegetation of the Kangai region in the lower course of the Karatal river. *Trans. Dokuchaev Inst.* 22, 1940 (133-158). Herb. Abs. 12 (192). [R.e.]
- (584)633.61-1.5—Gretsinger, V. H. Cultivation of sugar cane in Middle Asia. *Dokl. Akad. S.-Kh. Nauk* No. 8, 1941 (12-15). Biol. Abs. 16 (1871).
- (584)635.61-1.5 Kalashnikov, E. A. Water melons of the central Kara-Kum. *Lenin Acad. Agric. Sci. Mat. Comm. Deserts* (1938), 1939 (174-183). Herb. Abs. 10 (322). [R.e.]
- (59)631.445.73 Pendleton, R. L. Laterite in Siam and Cambodia. *Proc. Sixth Pacific Sci. Cong.* 4, 1940 (969-971).
- (59)633.841-1.81—Huitema, W. K. Pepper culture and soil fertility in Bangka. *Landbouw* 17, 1941 (747-773). Biol. Abs. 16 (1434). V, 6
- (59)633.912-1.5 Hammelburg, A. J. J. Rubber in Indo-China. *Bergcultures* 14, 1940 (1078-1083). [Du.]
- (591)631.459 Manning, D. E. B. Erosion in the Yomas of the North Pegu Forest Division. *Indian Forester* 67, 1941 (462-465). For. Abs. 3 (288).
- (591)631.589—Manning, D. E. B. Some aspects of the problem of taungyas in Burma. *Indian Forester* 67, 1941 (502-505). For. Abs. 3 (351).
- (593)63—Pendleton, R. L. Some interrelations between agriculture and forestry particularly in Thailand. *J. Thailand Res. Soc. Nat. Hist. Suppl.* 12, 1939 (33-52). Biol. Abs. 15 (551). IV, 4
- (593)63—Ladejinsky, W. I. Thailand's agricultural economy. *Foreign Agric.* 6, 1942 (165-184). VI, 2
- (593)63—Pendleton, R. L. Land use in north-eastern Thailand. *Geog. Rev.* 33, 1943 (15-41).
- (593)631.4—Pendleton, R. L. Soils of Thailand. *J. Thailand Res. Soc. Nat. Hist. Suppl.* 12, 1940 (235-260).
- (593)631.48—Blanck, E.; Credner, W.; Oldershausen, E. von. Contributions to the knowledge of chemical weathering and soil formation in Siam. *Siam Dept. Agric. Tech. Bull.* 2, 1937, pp. 60. IV, 5
- (595)633.18-1.81—Birkinshaw, F. A review of field experiments on padi in Malaya. *Malay. Agric. J.* 28, 1940 (507-516); 29, 1941 (3-43). IV, 3
- (595)633.377-1.4—Georgi, C. D. V. The outlook for derris. *Malay. Agric. J.* 28, 1940 (358-366).
- (595)633.855.34-1.5—Deasy, G. F. The oil palm in Malaya. *J. Geog.* 41, 1942 (21-32). Biol. Abs. 16 (1235).
- (595)635-1.5 Milsum, J. N.; Grist, D. H. Vegetable gardening in Malaya. *Malay. Plant. Man.* 3, 1941, pp. 215.



## BIBLIOGRAPHY OF SOIL SCIENCE

## (6) AFRICA

- (6)631.47—Shantz, H. L. Agricultural regions of Africa. *Econ. Geog.* 16, 1940 (341-389); 17, 1941 (217-249, 353-379); 18, 1942 (229-246, 343-362); 19, 1943 (77-109, 217-269).
- (61)63—Hockly, T. W. Agriculture in French North Africa. *Trop. Agricut.* 95, 1940 (84-89).
- (611)63—Chabrolin, C.; Guillochon, L. Development of agriculture, arboriculture and market gardening in relation to the needs of the indigenous population of Tunis. *Arch. Inst. Pasteur Afr. N.* 29, 1940 (302-318). *Biol. Abs.* 16 (1938).
- (612)63—Sullam, V. B. The agriculture of Northern Libya. *Foreign Agric.* 8, 1944 (159-168).
- IV, 2 (612)631.4—Gaddini, S. Analysis of the soils of Western Libya. *Agric. Colon.* 34, 1940 (94-99). *C.A.* 34 (7503).
- IV, 5 (612)631.83—Desio, A. The deposits of potassium salts of Marada-in-Sirtica (Libya). *Ricerca Sci. Roma* 11, 1940 (939-943). *C.A.* 35 (2823).
- (62)631.415.36—Mados, L. The reclamation of salty soils in the Nile Delta. *Technika Budapest* 21, 1940 (295-298). *C.A.* 35 (1918).
- (62)631.415.36—Hilmy, M. Reclamation of the waste lands (*barari*) in the northern part of the Delta. *Proc. Conf. Middle East Agric. Devt. Cairo*, 1944 (48-57).
- VII, 3 (62)631.586—Bahgat, M. Dry farming developments in the Mariut district. *Proc. Conf. Middle East Agric. Devt. Cairo*, 1944 (34-37).
- VII, 3 (62)631.617—Yousef, M. Reclamation of sandy soil in Egypt. *Proc. Conf. Middle East Agric. Devt. Cairo*, 1944 (68-73).
- VII, 3 (62)631.62—Kairy, A. Control of irrigation and drainage in the Nile Valley and recent development in covered drainage. *Proc. Conf. Middle East Agric. Devt. Cairo*, 1944 (2-7).
- VII, 1 (62)633.11-1.81:355.01—Anhoury, J. The effect of the rationing of nitrates and of the wartime cropping programme on the yield of wheat. *Bull. Un. Agric. Egypte* 41, 1943 (181-190). [F.]
- (62)634.3-1.5—Milad, Y. Citrus cultivation in Egypt: programme and studies. *Bull. Un. Agric. Egypte* 40, 1942 (302-308). [F.]
- (624)633.73-1.4—Thomas, A. S. The wild *arabica* coffee on the Boma plateau, Anglo-Egyptian Sudan. *Emp. J. Expt. Agric.* 10, 1942 (207-212).
- VII, 1 (63)63—Joyce, F. de V. Notes on agriculture in Ethiopia. Part 1. Part 2. Part 3. *E. Afric. Agric. J.* 8, 1943 (176-181, 227-230); 9, 1943 (35-38).
- VI, 2 (63)633.1-1.5—Ciferri, R. Cereal-growing in East Africa. V. The wheat problem and production prospects. *Ital. Agric.* 77, 1940 (31-42). [I.]
- (63)633.1-1.5—Ciferri, R.; Baldrati, I. Cereal growing in East Africa. *Ital. Agric.* 77, 1940 (170-176). *Biol. Abs.* 16 (1870).
- (64)634.62-1.5—Blin, H. The cultivation of the date palm at le Figuig. *Rev. Hort. Agric. Afr. N.* 113, 1941 (515-516); 114, 1942 (22-24). *Hort. Abs.* 13 (29).
- (65)631.4—Villar, H. del. Some profiles from the plains of the Habra and of the Chécliff valley. *Ann. Inst. Agric. Algérie* 1, No. 2, 1942 (41-64). [F.]

# FERTILIZERS AND GENERAL AGRONOMY

- (65)631.4 : 581.5—Henry, A. The flora of the Tessala massif as it is related to the good hard-wheat soils of that massif. *Ann. Inst. Agric. Algérie* 1, No. 2, 1942 (65-81). [F.] VI, 2
- (664)631.61—Rae, C. J. Swamp development in Sierra Leone. *Farm and Forest* 2, 1941 (113-117).
- (664)633.18-1.5—Roddan, G. M. The cultivation of swamp rice in Sierra Leone. *Trop. Agric. Trin.* 19, 1942 (84-86).
- (667)635-1.5—Gold Coast Department of Agriculture. Vegetable growing. *Gold Coast Dept. Agric. Booklet* 6, 1942, pp. 19.
- (669)63—Wallace, J. W. Agriculture in Abakaliki and Afikpo. *Farm and Forest* 2, 1941 (89-93).
- (669)631.4—Vine, H. A soil catena in the Nigerian cacao belt. *Farm and Forest* 2, 1941 (137-141).
- (669)631.4 : 581.5—Lamb, A. F. A. Different soils make different forests. *Farm and Forest* 2, 1941 (144-147). For. Abs. 4 (18).
- (669)631.458—Clarke-Butler-Cole, R. F. The influence of permanent crops on rural economy in the western provinces of Southern Nigeria. *Niger. Forester* 1, 1940 (32-35). For. Abs. 2 (254). IV, 3
- (669)631.459—Randell, P. C. Soil degradation and land use in Onitsha Province. *Niger. Forester* 1, No. 2, 1940 (21-25).
- (669)631.459—Briggs, G. W. G. Soil deterioration in the southern districts of Tiv Division, Benue Province. *Farm and Forest* 2, 1941 (8-12).
- (669)631.459—Spottiswoode, H. Soil conservation—in Basutoland and in Nigeria. *Farm and Forest* 3, 1942 (109-112). For. Abs. 4 (152).
- (669)631.459 : 631.61—Sykes, R. A. A history of the anti-erosion work at Udi. *Niger. Forester* 1, 1940 (3-6). For. Abs. 2 (188). IV, 3
- (669)631.47—Allison, P. A. Irun : a first exercise in land use survey. *Niger. Forester* 1, 1940 (43-47). Herb. Abs. 12 (116).
- (669)631.47—Urquhart, D. H. Land usage and utilization in southern Nigeria. *Niger. Forester* 1, 1940 (51-54). Herb. Abs. 12 (116).
- (669)631.47—Oliphant, J. N. The land-use movement in West Africa. *For. Abs.* 4, 1943 (205-210). VI, 3
- (669)631.58—Corby, H. D. L. Changes being brought about by the introduction of mixed farming. *Farm and Forest* 2, 1941 (106-109).
- (669)633.18-1.5—Glanville, R. R. Report on the possibilities of rice growing in the swamps of the Nigerian Deltas. *Third W. Afric. Agric. Conf.* 1938, 1, (Nigeria Sect.) (513-519).
- (671)633.74-1.5—West, J. ; Voelcker, O. J. Plantation cacao in the British Cameroons. *Trop. Agric. Trin.* 19, 1942 (4-11).
- (671)634.771-1.5—Smith, A. Banana cultivation in the British Cameroons. *Farm and Forest* 2, 1941 (82-86).
- (671.8)631.4—Mira y Sequeiros, E. A. ; Bores, M. S. Some data respecting the soils of continental Spanish Guinea and the island of Fernando Po. *Bol. Inst. Investig. Agron. Madrid* No. 7, 1942 (213-235). [Sp.]
- (672)63—Roest, P. K. French Equatorial Africa. *Foreign Agric.* 6, 1942 (83-108).
- (673)63—Goodstein, S. S. Angola (Portuguese West Africa). *Foreign Agric.* 7, 1943 (99-115).

# BIBLIOGRAPHY OF SOIL SCIENCE

- (673)633.2.03—Roseveare, G. M. The grasslands of Angola. *Herb. Abs. Suppl.* 11, 1941 (S61-S65). *Herb. Abs.* 12 (62).
- (675)631.459—Thomas, R. Soil deterioration in the Belgian Congo, the necessity of soil conservation and the possibility of soil reclamation work. *Mo. Bull. Agric. Sci. Pract.* 33, 1942 (133T-165T).
- (675)633.73-1.5—Dupret, R. Rejuvenation of a coffee plantation in the Belgian Congo. *Agric. Elev. Congo Belge* 12, 1938 (130). *N. Guinea Agric. Gaz.* 7, 1941 (123-124).
- (676)633.73-1.5—Lambers, H. R. Impressions of the coffee-growing in East and Central Africa. II. *E. Afric. Agric. J.* 6, 1940 (74-76).
- (676)1663—Watson, J. M. Some aspects of Teso agriculture. *E. Afric. Agric. J.* 6, 1941 (207-212).
- (676)1631.3—Brown, D. R. N. Native agricultural implements in Uganda Protectorate. *E. Afric. Agric. J.* 8, 1942 (96-100).
- (676)1631.4 : 581.5—Thomas, A. S. The vegetation of the Karamoja district, Uganda: an illustration of biological factors in tropical ecology. *J. Ecol.* 31, 1943 (149-177).
- (676)1631.415.7—Thomas, A. S. Food crops as indicator plants in Uganda. *E. Afric. Agric. J.* 8, 1943 (136-140).
- (676)1633.11-1.5—Kerkham, R. K. A note on wheat cultivation in Toro, Uganda. *E. Afric. Agric. J.* 6, 1941 (167-168).
- IV, 4 (676)1633.2.03-1.5 Hosking, H. R.; Stephens, A. L. Pastures and grasses on the Serere Experiment Station, Uganda. *E. Afric. Agric. J.* 6, 1941 (213-219).
- (676)1633.91—Thomas, A. S. The production and preparation of rubber in Uganda. *E. Afric. Agric. J.* 8, 1943 (231-237).
- V, 6 (676)1634.973.635.2—Thomas, A. S. A note on the distribution of *Chlorophora excelsa* in Uganda. *Emp. Forestry J.* 21, 1942 (42-43).
- (676)2 9631.58—Graham, M. D. An experiment in Native mixed farming in the Nyanza Province of Kenya. *E. Afric. Agric. J.* 7, 1941 (103-107).
- (676)2 9631.85—Jones, G. H. G. Phosphatic manuring in Kenya, with special reference to wheat. *E. Afric. Agric. J.* 7, 1941 (77-83).
- VII, 3 (676)2 9633.73-1.4—Gillett, S. Problems facing the Kenya coffee industry. *Coffee Bd. Kenya Mo. Bull.* 8, 1943 (87-88). *Hort. Abs.* 14 (45).
- (676)2 9633.879-1.5 Wimbush, S. H. A comparison of wattle growing in Natal and in Kenya. Part II.—Kenya conditions and practice. *E. Afric. Agric. J.* 6, 1941 (220-224).
- (676)2 9633.887.791-1.5 Country Life. The pyrethrum fields of Kenya. *Country Life* 95, 1944 (769).
- VII, 1 (677)63—Peck, E. F. Agriculture in the Somaliland Protectorate. *E. Afric. Agric. J.* 9, 1943 (42-46).
- (678)63—Thwaites, D. H. Wanyakyusa agriculture. *E. Afric. Agric. J.* 9, 1944 (236-239).
- (678)631.459 : 631.61—Staples, R. R. Combating soil erosion in the Central Province of Tanganyika Territory. *E. Afric. Agric. J.* 7, 1942 (156-165).

# FERTILIZERS AND GENERAL AGRONOMY

- (678)631.58--Gillman, C. A geographer's retrospect and note on the Mpwapwa land-use experiments and achievements. *E. Afric. Agric. J.* 8, 1943 (154-158). VI, 3
- (678)633.18-1.613--Allnut, R. B. Rice growing in dry areas. *E. Afric. Agric. J.* 8, 1942 (103-108). VI, 2
- (678.1)633.18-1.5--Wilson, F. B.; Tidbury, G. E. Native paddy cultivation and yields in Zanzibar. *E. Afric. Agric. J.* 9, 1944 (231-235).
- (679)63--Merdian, B. The agricultural resources of Mozambique. *Foreign Agric.* 6, 1942 (343-359). VI, 2
- (68.01)63--Wright, M. E. Agricultural resources of South Africa. *Foreign Agric.* 8, 1944 (51-62).
- (68.01)631.4--Taylor, A. J.; Scott, J. D. Soil fertility in the sour-veld areas of Natal. *Farm. S. Africa* 18, 1943 (659-664). VII, 4
- (68.01)631.416--Hall, A. L. Analyses of rocks, minerals, ores, coal, soils and waters from Southern Africa. *S. Africa Geol. Surv. Mem.* 32, 1938, pp. 876. C.A. 35 (3568).
- (68.01)631.421--Saunders, A. R. Field experiments at Potchefstroom. A summary of investigations conducted during the period 1903-1940. *S. Africa Dept. Agric. Sci. Bull.* 14 (*Anim. Crop Prod. Ser.* D), 1942, pp. 138.
- (68.01)631.459--Pentz, J. A. Soil erosion survey of the reclamation area in Natal. *S. Africa Dept. Agric. Sci. Bull.* 212, 1940, pp. 18.
- (68.01)631.459 : 631.61 Rode, M. C. H. Reclamation of an eroded farm. The achievement of a Karoo farmer. *Farm. S. Africa* 16, 1940 (82-83, 110).
- (68.01)631.459 : 631.61--MacKay, J. H. The soil erosion problem in Basutoland. *Farm and Forest* 3, 1942 (14-19). V, 6
- (68.01)631.459 : 631.61--Rowland, J. W. Technique in soil and veld conservation research. *S. Afric. Sug. J.* 27, 1943 (61, 63, 65, 67, 69).
- (68.01)631.459 : 631.61 Van Aartsen, J. P. Erosion and soil conservation in the Union of South Africa. *Mo. Bull. Agric. Sci. Pract.* 34, 1943 (153F-201T).
- (68.01)631.459 : 631.613 Gertenbach, J. J. Necessity for terrace banks in arable land of the Orange Free State. *Farm. S. Africa* 16, 1941 (173-174).
- (68.01)631.47--Grosskopf, J. F. W.; Uys, G. J. C. Agro-economic survey in the Union. First review of sub-division into farming areas. *Farm. S. Africa* 17, 1942 (260-280).
- (68.01)631.58--Heyns, O. S. Farming in the sandveld. *Farm. S. Africa* 18, 1943 (233, 236, 238).
- (68.01)631.58--Smit, N. L. A sound farming policy for the south-western districts. *Farm. S. Africa* 18, 1943 (133-136).
- (68.01)631.58--Theron, F. H. Veld management and fodder production in the north-western Cape. *Farm. S. Africa* 18, 1943 (291-294).
- (68.01)631.582--Sim, J. T. R. Crop rotation in the grain districts. *Farm. S. Africa* 18, 1943 (225-232). Biol. Abs. 17 (2408). VII, 2
- (68.01)631.589--Penzhorn, K. E. W. Burning veld out of season. *Farm. S. Africa* 17, 1942 (453-454).

# BIBLIOGRAPHY OF SOIL SCIENCE

- (68.01)631.61--Irvine, L. O. F. Bush encroachment in the northern Transvaal. *Farm. S. Africa* 18, 1943 (725-729).
- VII, 2 (68.01)631.61--Smit, N. L. Reclamation of rhenoster-bush veld. *Farm. S. Africa* 18, 1943 (287-289). *Biol. Abs.* 17 (2252).
- (68.01)631.81--Van Zyl, J. P. What sort of manure? *Farm. S. Africa* 18, 1943 (651-652).
- (68.01)631.81 : 355.01--**Farming in South Africa.** The new fertilizer mixtures. *Farm. S. Africa* 17, 1942 (179-184).
- VII, 3 (68.01)631.81 : 355.01--Marais, A. Maintenance of soil fertility in spite of a fertilizer shortage. *Farm. S. Africa* 18, 1943 (645-648).
- (68.01)631.851--Peniston, J. Weenen phosphates. *Farm. Week. S. Africa* 64, 1942 (709).
- (68.01)631.851--Frankel, J. J. Constitution of the Langebaan phosphate rock. *S. Afric. J. Sci.* 39, 1943 (102-108). *C.A.* 37 (4661).
- (68.01)631.851--Peniston, J. Weenen phosphates. *Farm. Week. S. Africa* 66, 1944 (1129).
- (68.01)631.879.1--Van Vuren, J. P. J. Municipal compost. *Farm. S. Africa* 17, 1942 (693-694, 713).
- (68.01)633.11-1.58--Neethling, J. C. A comparative study of wheat-farming in four sub-areas in the winter-rainfall crop districts of the Union of South Africa. *S. Africa Dept. Agric. Bull.* 227, 1941, pp. 65.
- VII, 4 (68.01)633.11-1.58--Slabber, M. H. Fertility of wheat soils in the western Cape Province. *Farm. S. Africa* 18, 1943 (653-658).
- IV, 2 (68.01)633.15-1.81--Van Garderen, J. ; Goldschmidt, W. B. Some observations on a six-year maize experiment. *Farm. S. Africa* 15, 1940 (409, 426).
- (68.01)633.2.03--Hall, A. D. Our veld : a major national problem. *Assoc. Sci. Tech. Soc. S. Africa* May 1942, pp. 25.
- (68.01)633.2.03--Uys, G. J. C. Agro-economic survey of the Union. III. The grazing areas of the eastern mountain watershed areas 3A, 3B, and 3C. *Farm. S. Africa* 17, 1942 (797-806).
- (68.01)633.2.03-1.58--Van den Berg, A. J. Grass pastures and the crop rotation system. *Farm. S. Africa* 16, 1941 (183).
- (68.01)633.34-1.5--Du Toit, J. J. The cultivation of soybeans. *Farm. S. Africa* 17, 1942 (9-16, 53). *Hort. Abs.* 16 (97).
- (68.01)633.34-1.5--**South Africa Department of Agriculture and Forestry.** Soya beans in South Africa. *S. Africa Dept. Agric. Bull.* 240, 1943, pp. 58.
- (68.01)633.61-1.61--**South African Sugar Journal.** Soil conservation in the sugar belt. *S. Afric. Sug. J.* 27, 1943 (387, 389).
- IV, 6 (68.01)633.61-1.81--**South African Sugar Journal.** Experiment station notes. Interesting fertilizer experiments : value of sulphate of ammonia. *S. Afric. Sug. J.* 25, 1941 (333, 334).
- (68.01)633.61-1.81--Dodds, H. H. The present fertilizer position. *S. Afric. Sug. J.* 26, 1942 (509, 511, 513, 515, 517, 519).
- (68.01)633.71-1.4--Steenkamp, J. L. Survey of the most important tobacco soils of the Union of South Africa. *S. Africa Dept. Agric. Bull.* 213 (*Chem. Ser.* 160), 1940, pp. 74.
- (68.01)633.71-1.4--Marais, A. The tobacco soils of the Union. *Farm. S. Africa* 16, 1941 (60, 76).

# FERTILIZERS AND GENERAL AGRONOMY

- (68.01)633.855.34—**South African Sugar Journal**. Oil palms for the sugar belt. A potentially valuable crop. *S. Afric. Sug. J.* 27, 1943 (125,127).
- (68.01)633.71-1.5—**Van Rooyen, C. F.** Factors which affect the quality of flue-cured tobacco. *Farm. S. Africa* 15, 1940 (355-356).
- (68.01)634.3-2.19-1.811.9—**de Villiers, J. I.** Trace element deficiencies in citrus. Results obtained in the eastern Transvaal. *Farm. S. Africa* 17, 1942 (337-340).
- (68.01)634.63-1.5—**Malan, E. F.** Olive culture in South Africa. *Farm. S. Africa* 19, 1944 (29-31).
- (68.01)635-1.81—**Le Roux, J. C.** Compost for vegetables. *Farm. S. Africa* 18, 1943 (677-678).
- (68.01)635-1.81—**Perold, I. S.** Fertilizing vegetables in the winter-rainfall area. *Farm. S. Africa* 18, 1943 (195-196, 200). VI, 3
- (689.1)631.459; 631.61—**Aylen, D.** Conserving soil in the Native reserves. *Rhod. Agric. J.* 39, 1942 (152-160).
- (689.1)631.613—**Aylen, D.** Who built the first contour ridges? *Rhod. Agric. J.* 38, 1941 (144-148). IV, 4
- (689.1)633.34-1.5—**Arnold, H. C.** Soya beans. *Rhod. Agric. J.* 38, 1940 (588-606); 39, 1942 (384-390, 418-432).
- (689.1)633.491-1.5—**Timson, S. D.** The potato. *Rhod. Agric. J.* 39, 1942 (274-295).
- (689.1)633.71-1.5—**Collins, J. C.** Turkish tobacco: culture and marketing in Southern Rhodesia. *Rhod. Agric. J.* 38, 1940 (630-652, 733-751).
- (689.1)633.71-1.5—**Brown, D. D.** The culture of Virginia type tobacco in Southern Rhodesia. *Rhod. Agric. J.* 38, 1941 (620-643).
- (689.1)633.71-1.5—**Brown, D. D.** Tobacco culture in Southern Rhodesia. Harvesting and curing Virginia type tobacco. *Rhod. Agric. J.* 39, 1942 (51-68).
- (689.1)633.71-1.5—**Collins, J. C.** Turkish tobacco. Culture and marketing in Southern Rhodesia. *Rhod. Agric. J.* 39, 1942 (449-476).
- (689.1)633.71-1.5—**Brown, D. D.** The culture of Turkish tobacco in Southern Rhodesia. *Rhod. Agric. J.* 40, 1943 (319-341); 42, 1945 (53-75).
- (689.1)635.25-1.5—**Rhodesia Agricultural Journal**. The growing of onions. *Rhod. Agric. J.* 41, 1944 (14-16). VII, 3
- (689.7)631.58—**Wilson, S. G.** Agricultural practices among the Angoni-Tumbuka tribes of Mzimba (Nyasaland). *E. Afric. Agric. J.* 7, 1941 (89-93).
- (689.7)633.854.56-1.5—**Webster, C. C.** A note on the yield of tung trees in Nyasaland. *E. Afric. Agric. J.* 6, 1941 (160-163).
- (689.7)634.975-1.466.1—**Clements, J. B.** The introduction of pines into Nyasaland. *Nyasaland Agric. Quart. J.* 1, No. 4, 1941 (5-15). Biol. Abs. 16 (2326). VI, 2
- (696)631.589—**Vesey-Fitzgerald, D.** On the vegetation of Seychelles. *J. Ecol.* 28, 1940 (465-483). Herb. Abs. 10 (353).
- (698.2)631.811—**Craig, N.** The distribution of soil fertility in Mauritius and its relation to fertilizer requirements. *Rev. Agric. Maurice* 20, 1941 (214-226). [E.]
- (698.2)631.875—**Dymond, G. C.** Organic manures in Mauritius. *Proc. Ann. Cong. S. Afric. Sug. Tech. Assoc.* 16, 1942 (83-84). VI, 1

# BIBLIOGRAPHY OF SOIL SCIENCE

- VII, 3 (698.2)633.2.03—Wiehe, P. O. A study of Mauritius pastures. I. Elephant grass. *Rev. Agric. Maurice* 22, 1943 (300-305). [F.]  
 (698.2)633.491-1.5—Coombes, A. N. Potato culture in Mauritius. *Mauritius Dept. Agric. Gen. Ser. Bull.* 48, 1940, pp. 39. Hort. Abs. 11 (140).  
 (698.2)633.61-1.5—Coombes, F. N. Sugar-cane agriculture in Mauritius. *Rev. Agric. Maurice* 22, 1943 (140-160). [F.]

## (7) NORTH AMERICA

- (71)631.4—Stobbe, P. C.; Leahey, A. Guide for the selection of agricultural soils. *Canada Dept. Agric. Farm. Bull.* 417 (Pub. 748), 1943, pp. 20.  
 (71)631.4 : 581.5—Chandler, R. F., Jr. Some observations of soils and vegetation in Canada, southern Alaska, and Mexico. *Chron. Bot.* 7, 1942 (271-272). For. Abs. 5 (99).  
 (71)633.71-1.4—Canada Department of Agriculture. Tobacco soils and fertilizers. *Canada Dept. Agric. Pub.* 703, 1940, pp. 4. Hort. Abs. 10 (266).  
 (71)633.71-1.4—Nelson, N. T. Tobacco research in Canada. *Emp. J. Expt. Agric.* 9, 1941 (265-276). Hort. Abs. 12 (41).  
 (71)631.4—Archibald, E. S.; Dickson, W. Research in prairie farm rehabilitation. *Canad. Geog. J.* 28, 1944 (53-63).  
 (71)631.47—Ellis, H. J. Soil zones and land use in western Canada. *Proc. Sixth Pacific Sci. Cong.* 4, 1940 (853-866). Herb. Abs. 12 (117).  
 (71)631.47—Coke, J. Land classification in western Canada. *Sci. Agric.* 21, 1941 (378-387).  
 (71)633.2.03-1.58—Clarke, S. E. Pasture improvement for cheaper production (Prairie Provinces). *Canada Agric. Supplies Bd. Spec. Pamph.* 56, 1941, pp. 4.  
 IV, 6 (71)633.2.03-1.58—Clarke, S. E.; Heinricks, D. H. Re-grassing abandoned farms, submarginal cultivated lands and depleted pastures in the prairie areas of western Canada. *Canada Dept. Agric. Farm. Bull.* 103 (Pub. 720), 1941, pp. 23.  
 IV, 6 (71)633.52-1.5—Lehberg, F. H.; Anderson, J. A. Western Canadian flaxseed. *Sci. Agric.* 21, 1941 (727-745).  
 (71)631.4 : 55—Allan, J. A. Geology of Alberta soils. *Alberta Res. Council Geol. Rept.* 34, Pt. III, 1943 (60-146).  
 VII, 3 (71)631.4 : 581.5—Moss, E. H. The prairie and associated vegetation of south-western Alberta. *Canad. J. Res.* 22C, 1944 (11-31).  
 (71)631.435—Bowser, W. E. Mechanical composition of some characteristic soil profiles from southern Alberta. *Sci. Agric.* 22, 1942 (341-346).  
 (71)631.47—Bowser, W. E. Some available data relating to land settlement in Alberta. *Sci. Agric.* 23, 1942 (205-210).  
 (71)631.47—Palmer, A. E. Possibilities for settlement on irrigated lands in Alberta. *Sci. Agric.* 23, 1942 (200-204).  
 VI, 2 (71)631.47—Stewart, A.; Porter, W. D. Land use classification in the special areas of Alberta and in Rosenheim and Acadia Valley. *Canada Dept. Agric. Pub.* 731 (Tech. Bull. 39), 1942, pp. 73.

# FERTILIZERS AND GENERAL AGRONOMY

- (712.3)631.473—Wyatt, F. A.; Bowser, W. E.; Allan, J. A., et al. Soil survey of Lethbridge and Pincher Creek sheets. *Alberta Univ. Coll. Agric. Bull.* 32, 1939, pp. 98. C.A. 35 (1917).
- (712.3)631.473—Wyatt, F. A.; Newton, J. D.; Bowser, W. E., et al. Soil survey of Milk River sheet. *Alberta Univ. Coll. Agric. Bull.* 36, 1941 (7-105). C.A. 36 (1127).
- (712.3)631.473—Wyatt, F. A.; Newton, J. D.; Bowser, W. E., et al. Soil survey of the Blackfoot and Calgary sheets. The relation of the geology to the soils in the Blackfoot and Calgary sheets. *Alberta Univ. Coll. Agric. Bull.* 39, 1942 (7-101, 102-119). C.A. 37 (211).
- (712.3)635.53-1.5—Shoemaker, J. S. Celery in Alberta. *Alberta Univ. Coll. Agric. Bull.* 35, 1940, pp. 52.
- (712.4)631.47—Spence, C. C.; Hope, E. C. An economic classification of land in fifty-six municipal divisions, south central Saskatchewan. *Canada Dept. Agric. Pub.* 728 (*Tech. Bull.* 36), 1941, pp. 42.
- (712.4)631.47—Mitchell, J.; Moss, H. C. Problems of land settlement in Saskatchewan. *Sci. Agric.* 23, 1942 (195-199).
- (712.7)631.473—Ellis, J. H.; Shafer, W. H. Reconnaissance soil survey south-western Manitoba. *Manitoba Soil Surv. Soils Rept.* 3, 1940, pp. 104.
- (712.7)631.473—Ellis, J. H.; Shafer, W. H. Report of reconnaissance soil survey of south-central Manitoba. *Manitoba Soil Surv. Soils Rept.* 4, 1943, pp. 146.
- (713)631.4—Chapman, L. J.; Putnam, D. F. The soils of eastern Ontario. *Sci. Agric.* 22, 1942 (608-636).
- (713)631.4:55—Chapman, L. J.; Putnam, D. F. The physiography of eastern Ontario. *Sci. Agric.* 20, 1940 (424-441). *Biol. Abs.* 15 (525).
- (713)631.4:55—Chapman, L. J.; Putnam, D. F. The physiography of southwestern Ontario. *Sci. Agric.* 24, 1943 (101-125). *Biol. Abs.* 18 (578).
- (713)631.459—Coventry, A. F. Desiccation in southern Ontario. *Trans. Roy. Soc. Canada* 34, Sect. V, 1940 (15-23). [E.]
- (713)631.459—Dickson, W. Some aspects of soil erosion in Eastern Canada. *Sci. Agric.* 23, 1942 (220-222).
- (713)631.47—Barton, T. F. Agricultural landscapes of the Sudbury area, Ontario. *Trans. Ill. St. Acad. Sci.* 34, 1941 (130-137). *Herb. Abs.* 13 (287).
- (713)631.58—Ballantyne, J. P. S. Experimental Station, Kapuskasing, Ontario. Results of experiments 1936-1940. *Canada Dept. Agric.* 1942, pp. 43.
- (713)633.63-1.81—Brown, H. D. Applying fertilizers to sugar beets in Ontario. *Proc. Amer. Soc. Sug. Beet Tech.* 1940 (68-74). *Biol. Abs.* 16 (1870).
- (713)633.71-1.435—Horton, H. A. Flue-cured tobacco soils in the New Belt. *Lighter* 10, No. 1, 1940 (15-20). C.A. 34 (7511).
- (713)635-1.4—Jones, T. H.; Goodwin-Wilson, R.; Truscott, J. H. L. The value of soil analysis as an aid in truck-crop production in Ontario. Progress report. *Ontario Dept. Agric. Bull.* 421, 1942, pp. 17. C.A. 36 (6283).



# BIBLIOGRAPHY OF SOIL SCIENCE

- (714)631.473—Cann, D. B. ; Lajoie, P. Soil survey of Stanstead, Richmond, Sherbrooke and Compton counties. *Canada Dept. Agric. Pub.* 742 (*Tech. Bull.* 45), 1942, pp. 59.
- (714)633.42-2.19 : 546.27—Campagna, E. ; Godbout, A. ; Laplante, E. Brown heart in turnips. *Bonne Terre* 20, 1939 (181-195). *Biol. Abs.* 15 (135). [E.]
- (714)634.9-1.458—Rousseau, L. Z. Forest soils and their conservation. *Forêt Québécoise* 4, 1942 (92-100). *Biol. Abs.* 16 (1882).
- (715)631.47—Taylor, E. M. Land settlement in New Brunswick. *Sci. Agric.* 23, 1942 (217-219).
- (716)631.47—Longley, W. V. ; Chown, W. F. A study of land utilization, farm production and rural living. *Nova Scotia Dept. Agric. Bull.* 118, 1936, pp. 112. *Herb. Abs.* 13 (2).
- (716)631.47—Lewis, J. N. ; Hudson, S. G. Land use and part-time farming in Cape Breton County, Nova Scotia. *Canada Dept. Agric.* 1942, pp. 63. (Mimeo.) *Herb. Abs.* 12 (220).
- VI, 2 (717)631.459 : 631.61—Clark, J. A. Prince Edward Island soils and control methods for soil erosion. *Sci. Agric.* 23, 1942 (223-228).
- (718)63—Pugh, S. G. Newfoundland and agriculture. *Canad. Soc. Tech. Agric. Rev.* 37, 1943 (27-32). *Herb. Abs.* 13 (287).
- (72)63—Swift Powell, J. Agriculture in Mexico. *Pan Amer. Un. Agric. Ser. Pub.* 1, 1943, pp. 24. *Biol. Abs.* 17 (2232).
- (72)631.4—Rivera, I. M. ; Breton, R. M. Plants commonly called "maleza" or "hierbas malas" (weeds). *An. Inst. Biol. Univ. Mex.* 11, 1940 (103-127). *C.A.* 34 (7511).
- (72)631.4 : 581.5—Shreve, F. Grassland and related vegetation in Northern Mexico. *Madroño* 6, 1942 (190-198). *Biol. Abs.* 17 (1369).
- (72)631.459 : 631.61—Patiño, L. R. Soil erosion control in the central plateau of Mexico. *Proc. Sixth Pacific Sci. Cong.* 4, 1940 (877-883). *Herb. Abs.* 12 (120).
- (72)631.459 : 631.61—Bennett, H. H. Some glimpses of rural Mexico. *Soil Conservation* 8, 1942 (103-109).
- (72)633.821-1.5—Mallory, L. D. ; Cochran, W. P., Jr. Mexican vanilla production and trade. *Foreign Agric.* 5, 1941 (469-488).
- IV, 5 (728)634.771-1.5—Wardlaw, G. W. The banana in Central America. I. Cultivation. *Nature* 147, 1941 (313-316). *Hort. Abs.* 11 (153).
- (728.1)63—McBride, G. McC. ; McBride, M. A. Highland Guatemala and its Maya communities. *Geog. Rev.* 32, 1942 (252-268). *Herb. Abs.* 12 (209).
- (728.1)63—Popenoe, W. Plant resources of Guatemala. *Chron. Bot.* 7, 1942 (16-19). *Biol. Abs.* 16 (1056). [E.]
- (728.1)63—Wylie, K. H. Agricultural production in Guatemala. *Foreign Agric.* 7, 1943 (195-211).
- (728.1)631.4—Deger, E. General observations on the conservation, fertilization and resources of the soils of Guatemala. *Rev. Agric. Guatemala* 17, 1940 (305-318). *Herb. Abs.* 12 (120).
- (728.1)631.417—Klein, V. The reorganization of the humus in Guatemalan soils. *Rev. Agric. Guatemala* 18, 1941 (10-11). *Herb. Abs.* 12 (120).

## FERTILIZERS AND GENERAL AGRONOMY

- (728.1)633.377-1.5—**Ippisch, F., Jr.** Derris and other insecticidal plants grown in Guatemala. *Rev. Agric. Guatemala* 17, 18, 1940, 1941 (320-322, 86-89). Hort. Abs. 12 (159).
- (728.1)633.74-1.5—**Samayoa, O.** Cacao and its cultivation. *Rev. Agric. Guatemala* 17, 1940 (325-338). Hort. Abs. 11 (144).
- (728.1)633.885.1-1.5—**Popenoe, W.** Cinchona in Guatemala. *Trop. Agric. Trin.* 18, 1941 (70-74). Hort. Abs. 11 (336).
- (728.2)581.5—**Lundell, C. L.** The vegetation and natural resources of British Honduras. *Chron. Bot.* 7, 1942 (169-171).
- (728.2)631.4—**Charter, C. F.** A reconnaissance survey of the soils of British Honduras north of the central metamorphic and igneous massif with special reference to their utilisation in agriculture. *Govt. Brit. Honduras* 1940, pp. 39.
- (729)63—**Hodge, W. H.** The natural resources of the Lesser Antilles. *Chron. Bot.* 6, 1941 (448-449). Biol. Abs. 16 (1227). Hort. Abs. 12 (106).
- (729)63—**Hynam, C. A. S.** Agriculture in the Dutch Windward Islands. *Trop. Agric. Trin.* 18, 1941 (135-138).
- (729)63—**Skutch, A. F.** The natural resources of Costa Rica. *Chron. Bot.* 6, 1941 (399-402). Biol. Abs. 16 (1237). Hort. Abs. 12 (105).
- (729)63—**Minneman, P. G.** Cuban agriculture. *Foreign Agric.* 6, 1942 (43-76).
- (729)63—**Minneman, P. G.** The agriculture of Cuba. *Foreign Agric. Bull.* 2, 1942, pp. 144.
- (729)63—**Wakefield, A. J.** Report on agricultural development in the Bahamas. *Nassau Guardian* 1942, pp. 55. A.B.A. 10 (276). Herb. Abs. 12 (210).
- (729)63—**Wylle, K. H.** The agriculture of Jamaica. *Foreign Agric.* 6, 1942 (121-146). VI, 2
- (729)63—**Swift Powell, J.** Agriculture in the Dominican Republic. *Pan Amer. Un. Agric. Ser. Pub.* 2, 1943, pp. 25. Biol. Abs. 17 (2232).
- (729)63—**Parisinos, C. C. ; Shephard, C. Y. ; Jolly, A. L.** Peasant agriculture; an economic survey of the Las Lomas district, Trinidad. *Trop. Agric. Trin.* 21, 1944 (84-98).
- (729)631.4—**Bonnet, J. A.** Chemical data of Puerto Rico soils. Correlation of data for humid and arid areas. Field response of crops to available phosphorus and potash in soils. *P.R. Agric. Expt. Sta. Res. Bull.* 1, 1941, pp. 53. [E.sp.]
- (729)631.4—**Colón Torres, R.** Soils of Puerto Rico classified by geological formations, series, types, and phases, with productivity rating of each based on inherent qualities of the land, area, and per cent of total area. *P.R. Agric. Expt. Sta. Mimeo. Rept.* 19, 1941, pp. 18. E.S.R. 87 (25). V, 6
- (729)631.415.1—**Smith, Roberto.** The pH of Cuban soils. *Agronomia Cuba* 3, 1943 (9-19). C.A. 37 (3213).
- (729)631.416.2—**Bonnet, J. A.** Phosphoric acid and silica of Puerto Rico soils. *J. Agric. Univ. P.R.* 24, 1940 (143-150). E.S.R. 85 (730).
- (729)631.459—**Beard, J. S.** Soil erosion on the Island of Chacachacare, Trinidad, B.W.I. *Carib. Forest.* 2, 1941 (136-137). For. Abs. 3 (105). [E.sp.]

# BIBLIOGRAPHY OF SOIL SCIENCE

- V, 3 (729)631.459—Hardy, F. Soil erosion in Trinidad and Tobago. *Trop. Agric. Trin.* 19, 1942 (29-35).
- (729)631.459 : 631.61—Croucher, H. H. Progress in soil erosion control. *J. Jamaica Agric. Soc.* 46, 1942 (211-213).
- (729)631.459 : 631.61—Harrison, E. Soil conservation work in Puerto Rico. *Trop. Agric. Trin.* 19, 1942 (54-55).
- (729)631.459 : 631.61—Alberts, H. W.; Garcia-Mollinari, O. Pastures of Puerto Rico and their relation to soil conservation. *U.S.D.A. Misc. Pub.* 513, 1943, pp. 46.
- VI, 1 (729)631.47—Foscue, E. J. Land utilization in Costa Rica. *Sci. Mo. New York* 53, 1942 (427-439). *Herb. Abs.* 12 (116).
- VI, 4 (729)631.58—Faulkner, O. T.; Shephard, C. Y. Mixed farming The basis of a system for West Indian peasants. *Trop. Agric. Trin.* 20, 1943 (136-142).
- (729)633.377-1.5—Moore, R. H. Derris culture in Puerto Rico. *P.R. Agric. Expt. Sta. Circ.* 24, 1943, pp. 17. *Biol. Abs.* 17 (2424).
- (729)633.61-1.4—Charter, C. F. A brief description of the sugar-cane soils of Trinidad. *Trin. Sug.-Cane Investg. Cttee. Ann. Rept.* (1941), 1941 (186-196).
- (729)633.61-1.4—Charter, C. F. A tentative grouping of Trinidad sugar-cane soils on the basis of their moisture relationships. *Trin. Sug.-Cane Investg. Cttee. Ann. Rept.* (1942), 1942 (224-232).
- (729)633.61-1.5—Turner, P. E. Progress in sugar-cane agriculture in Antigua during the period 1933-40. *Trop. Agric. Trin.* 17, 1940 (208-212, 226-232).
- VI, 3 (729)633.61-1.83—Baker, M. S. Potash experiment results obtained by Luce & Company. *P.R. Sug. Man.* 1940-41 (64-73). *C.A.* 36 (3609).
- (729)633.73-1.4 Gillett, S. Report on a visit to the coffee growing centres in Jamaica, Costa Rica and Colombia. *Coffee Bd. Kenya Mo. Bull.* 6, 1940 (24-27, 40-42).
- IV, 1 (729)633.73-1.5 Guiscafré-Arrillaga, J.; Gómez, L. A. Results of a study of cultivation practices employed on 398 coffee plantations in Puerto Rico. *P.R. Esta. Expt. Agric. Bol.* 49, 1939, pp. 41. [Spec.]
- VI, 3 (729)633.74-1.811 Jolly, A. L. Factors affecting field yields of cacao in Grenada. *Trop. Agric. Trin.* 19, 1943 (234-243).
- (729)634.61-1.4 Pieris, W. V. D. Coconut cultivation in the Island of Trinidad, British West Indies. *Trop. Agricult.* 96, 1941 (328-346).
- (729)634.771-1.5 Popenoe, W. Banana culture around the Caribbean. *Trop. Agric. Trin.* 18, 1941 (8-12, 33-38).
- (729)634.9-1.4 Beard, J. S. The woodlands of Bermuda. *Emp. Forestry J.* 19, 1940 (258-263).
- VI, 1 (729)635.64-1.5—Topper, B. F. Tomato cultivation on the College Farm. *Trop. Agric. Trin.* 19, 1942 (180-182).
- (73)631.459—Arber, M. A. Aspects of the problem of soil erosion in North America. *Geog. J.* 102, 1943 (258-260).
- (73)631.459 : 631.61—Hansen, R. United States literature on soil cover and conservation. *ForschDienst.* 11, 1941 (191-201). [G.]
- (73)631.459 : 631.61—McDonald, A. Early American soil conservationists. *U.S.D.A. Misc. Pub.* 449, 1941, pp. 63.

## FERTILIZERS AND GENERAL AGRONOMY

- (73)631.459 : 631.61--Bennett, H. H. Adjustment of agriculture to its environment. *Better Crops with Plant Food* 28, No. 1, 1944 (23-30, 44-48). VII, 2
- (73)631.459 : 631.61--Bennett, H. H. What America has learned about soil conservation. *Farm. S. Africa* 67, 1944 (268-269). VII, 3
- (73)631.47--United States National Resources Planning Board. Public works and rural land use. *U.S. Natl. Resour. Pl. Bd. Land Offer. Washington, D.C.* 1942, pp. 174. Herb. Abs. 13 (195).
- (73)631.824 -Whittaker, C. W.; Ross, W. H. Domestic sources of agricultural magnesium. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (228-232).
- (73)631.851--Mansfield, G. R. Phosphate deposits of the world with special reference to the United States. *Amer. Fert.* 95, No. 6, 1941 (5-7). Biol. Abs. 16 (1231).
- (73)632.19 : 546.27--Purvis, E. R. The present status of boron in American agriculture. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (316-321).
- (73)633 5--United States Department of Agriculture. A graphic summary of farm crops. (Based largely on the census of 1940.) *U.S.D.A. Misc. Pub.* 512, 1943, pp. 104.
- (73)633.854.56-1.5 -Blackmon, G. H. The tung oil industry. *Bot. Rev.* 9, 1943 (1-40). Hort. Abs. 13 (69).
- (73)633.913 Trumbull, H. L. Growing rubber in North America. *Indust. Engng. Chem.* 34, 1942 (1328-1335). Hort. Abs. 13 (61).
- (73)634.11-1.4 -Magness, J. R. Apple varieties and important producing sections of the United States. *U.S.D.A. Farm. Bull.* 1883, 1941, pp. 32.
- (73)634.55-1.5 -Pascual, A. Almond growing throughout the world : (3) the United States. *Mo. Bull. Agric. Sci. Pract.* 33, 1942 (165T-170T).
- (73)634.58-1.5 -West, H. O. Peanut production. *Miss. Agric. Expt. Sta. Bull.* 341, 1940, pp. 63.
- (73)634.651--Traub, H. P.; Robinson, T. R.; Stevens, H. E. Papaya production in the United States. *U.S.D.A. Circ.* 633, 1942, pp. 36. B.C.A.B. III, 1943 (71).
- (73)634.653-1.5 -Traub, H. P.; Pomeroy, C. S.; Robinson, T. R., et al. Avocado production in the United States. *U.S.D.A. Circ.* 620, 1941, pp. 28.
- (73)634.8-1.5 -Magoon, C. A.; Snyder, E. Grape regions of the United States. *Proc. Amer. Soc. Hort. Sci.* 42, 1943 (425-431).
- (73)634.972.4-1.5--Reed, C. A. The present status of chestnut growing in the United States. *Proc. Amer. Soc. Hort. Sci.* (1941) 39, 1941 (147-152). Biol. Abs. 16 (996).
- (73)635.8-1.5--Retter, G. R. The cultivation of mushrooms. *J. N.Y. Bot. Gdn.* 43, 1942 (8-14). R.A.M. 21 (239).
- (74)553.97--Waksman, S. A. The peats of New Jersey and their utilization. *N.J. St. Dept. Conserv. Geol. Ser. Bull.* 55, 1942, pp. 155.
- (74)553.97--Waksman, S. A.; Schulhoff, H. B. The nature and properties of peats in New Jersey. *Soil Sci.* 54, 1942 (447-461).

# BIBLIOGRAPHY OF SOIL SCIENCE

- (74)631.4—Lipman, J. G. ; Joffe, J. S. ; Conybeare, A. B. Analyses of United States soils.—I. North Atlantic States. *N.J. Agric. Expt. Sta.* 1940, pp. 91. E.S.R. 84 (156).
- (74)631.4—Beaumont, A. B. Geography of New England soils. *Econ. Geog.* 18, 1942 (203-208).
- (74)631.415.1—Bear, F. E. ; Toth, S. J. The pH values and lime-requirements of 20 New Jersey soils. *N.J. Agric. Expt. Sta. Circ.* 446, 1942, pp. 15. *Biol. Abs.* 17 (1283).
- (74)631.459—Atkinson, C. H. Erosion and related land use conditions on the Mad River watershed, Vermont. *U.S.D.A. Soil Conserv. Serv. Erosion Surv.* 13, 1940, pp. 31. *Herb. Abs.* 12 (72).
- (74)631.459—Bonsteel, J. A. ; Bass, T. C. Erosion and related land use conditions in the Conestoga Area, Pa. *U.S.D.A. Soil Conserv. Serv. Erosion Surv.* 15, 1940, pp. 52. *Biol. Abs.* 16 (1707).
- (74)631.459—Steele, J. G. ; Mowrey, R. G. Erosion and related land use conditions on the Crooked Creek Project near Indiana, Pa. *U.S.D.A. Soil Conserv. Serv. Erosion Surv.* 16, 1940, pp. 35. *Biol. Abs.* 16 (2317).
- IV, 6 (74)631.459—Perry, E. A. A study of soil erosion in the agricultural areas of Rhode Island and the comparative erodibility of five major soil series associated with these areas. *R.I. Agric. Expt. Sta. Bull.* 277, 1941, pp. 25.
- VI, 2 (74)631.459—Midgley, A. R. ; Plath, C. V. ; Mayernik, J. J. Erosion on Vermont permanent pastures. *Vt. Agric. Expt. Sta. Bull.* 483, 1942, pp. 15. E.S.R. 87 (638).
- (74)631.459 : 631.61—Edminster, F. C. Wildlife management through soil conservation on farms in the northeast. *U.S.D.A. Farm. Bull.* 1868, 1941, pp. 54.
- (74)631.47—Beaumont, A. B. Natural land types of Massachusetts and their use. *Mass. Agric. Expt. Sta. Bull.* 385, 1941, pp. 16. E.S.R. 86 (296).
- (74)631.47—Darrach, L. B. An economic study of land utilization in Schuyler County, New York. *Cornell Agric. Expt. Sta. Bull.* 781, 1942, pp. 40. E.S.R. 88 (262).
- (74)631.47—Kostanick, L. ; Prunty, M., Jr. Soils and farm economy about Mount Warner, Massachusetts. *Econ. Geog.* 18, 1942 (173-187).
- (74)631.47—Miller, S. R. Solving land-use problems. *Mc. Agric. Ext. Serv. Ext. Bull.* 298, 1942, pp. 20. *Herb. Abs.* 13 (3).
- (74)631.58—Gustafson, A. F. Soil and field-crop management for southeastern New York. *Cornell Agric. Expt. Sta. Bull.* 746, 1940, pp. 31.
- (74)631.58—Gustafson, A. F. Soil and field-crop management for northwestern New York. *Cornell Agric. Expt. Sta. Bull.* 777, 1942, pp. 32. E.S.R. 87 (483).
- (74)631.58—Gustafson, A. F. Soil and field-crop management for the Catskill-Mohawk area of New York. *Cornell Agric. Expt. Sta. Bull.* 789, 1942, pp. 32.
- (74)631.612—Kucinski, K. J. ; Eisenmenger, W. S. Sand dune stabilization on Cape Cod. *Econ. Geog.* 19, 1943 (206-214).

## FERTILIZERS AND GENERAL AGRONOMY

(74)631.81—Worthen, E. L. Fertilizers and field crops. I. Results of sixteen years of experiments on Volusia silt loam in Allegany County, New York. II. Results of sixteen years of experiments on Honeoye silty clay loam in Monroe County, New York. III. Results of twenty years of experiments on Volusia silt loam in Cortland County, New York. *Cornell Agric. Expt. Sta. Bulls.* 748, 749, 750, 1941, pp. 28, 26, 15.

(74)632.19 : 546.27—Brown, B. A. Boron deficiencies in Connecticut. *J. Amer. Soc. Agron.* 33, 1941 (85).

(74)632.19 : 546.27—White-Stevens, R. H. Boron deficiency on Long Island. *Better Crops with Plant Food* 26, No. 2, 1942 (6-9, 42-46).

(74)633.2.03-1.5—Abell, M. F. Studies of pasture management. *N.H. Agric. Expt. Sta. Bull.* 326, 1940, pp. 24.

(74)633.2.03-1.5—Colby, W. G. Pasture culture in Massachusetts. *Mass. Agric. Expt. Sta. Bull.* 380, 1941, pp. 44. E.S.R. 86 (774).

(74)633.2.03-1.5—Gustafson, A. F.; Johnstone-Wallace, D. B. Soil and pasture management for Long Island, New York. *Cornell Agric. Expt. Sta. Bull.* 755, 1941, pp. 44.

(74)633.2.03-1.816.23—Prince, F. S.; Percival, G. P.; Blood, P. T., et al. Pasture top-dressing in New Hampshire. *N.H. Agric. Expt. Sta. Bull.* 320, 1940, pp. 24. E.S.R. 83 (761).

(74)633.322-1.5—Hollowell, E. A. Ladino white clover for the northeastern States. *U.S.D.A. Farm. Bull.* 1910, 1942, pp. 10. Biol. Abs. 17 (1279).

(74)634.11-1.4—Davidson, O. W. Apple soils and their management in south Jersey. *N.J. Agric. Expt. Sta. Circ.* 425, 1942, pp. 8. Biol. Abs. 16 (2322).

(74)634.25-1.5—Bailey, J. S. Peach growing in Massachusetts. *Mass. Agric. Expt. Sta. Bull.* 399, 1943, pp. 16. Hort. Abs. 13 (151).

(74)634.711-1.5—Slate, G. L.; Suit, R. F.; Mundinger, F. G. Raspberry growing in New York: culture, diseases, and insects. *N.Y. St. Agric. Expt. Sta. Circ.* 153, 1940, pp. 57. R.A.M. 21 (296).

(74)634.73-1.5—Bailey, J. S.; Franklin, H. J.; Kelley, J. L. Blueberry culture in Massachusetts. *Mass. Agric. Expt. Sta. Bull.* 358 (revised), 1941, pp. 20. Hort. Abs. 12 (136).

(74)634.75-1.5—Darrow, G. M. Strawberry culture: eastern United States. *U.S.D.A. Farm. Bull.* 1028, 1941, pp. 43.

(74)635.964-1.5—DeFrance, J. A. Turf making and lawn management in Rhode Island. *R.I. Agric. Expt. Sta. Misc. Pub.* 6, 1940, pp. 33. E.S.R. 83 (333).

(75)63—Hamilton, A. B.; Johnson, T. D. Types of farming in Maryland. *Md. Agric. Expt. Sta. Bull.* 432, 1940 (217-271).

(75)631.4—Brown, I. C.; Thorp, J. Morphology and composition of some soils of the Miami family and the Miami catena. *U.S.D.A. Tech. Bull.* 834, 1942, pp. 55.

(75)631.4—Browning, G. M.; Sudds, R. H. Some physical and chemical properties of the principal orchard soils in the Eastern Panhandle of West Virginia. *W. Va. Agric. Expt. Sta. Bull.* 303, 1942, pp. 56. Biol. Abs. 16 (1877). C.A. 36 (6726).

# BIBLIOGRAPHY OF SOIL SCIENCE

- VII, 2 (75)631.4—Joffe, J. S. ; Conybeare, A. B. Analyses of United States soils. Section 11: South Atlantic States. *N.J. Agric. Expt. Sta.* 1943, pp. 11. C.A. 38 (445).
- (75)631.4 : 581.5—Laessle, A. M. The plant communities of the Welaka area, with special reference to the correlations between soils and vegetational succession. *Fla. Univ. Biol. Sci. Ser. Pub.* 4, 1942, pp. 143. For. Abs. 5 (101).
- VI, 2 (75)631.4 : 581.5 Wells, B. W. Ecological problems of the southeastern United States coastal plain. *Bot. Rev.* 8, 1942 (533-561).
- (75)631.411.4 : 631.61—Allison, R. V. The soil and water conservation problem in the Everglades. *Proc. Soil Sci. Soc. Florida* 1, 1939 (35-57).
- (75)631.411.4 : 631.62 Clayton, B. S. ; Jones, L. A. Controlled drainage in the northern Everglades of Florida. *Agric. Engng.* 22, 1941 (287-288, 291).
- (75)631.416.4 Olson, L. C. ; Bledsoe, R. P. Available potash in the surface soils of Georgia. *Better Crops with Plant Food* 28, No. 1, 1944 (20-22, 39-41).
- (75)631.459 : 631.61—Weitzell, E. C. Economic implications of soil conservation in Marshall County. *W. Va. Agric. Expt. Sta. Bull.* 293, 1939, pp. 47.
- VII, 2 (75)631.459 : 631.61 Hall, A. R. The story of soil conservation in the South Carolina Piedmont 1800-1860. *U.S.D.A. Misc. Pub.* 407, 1940, pp. 35.
- (75)631.459 : 631.61 Bennett, H. H. Thomas Jefferson, soil conservationist. *U.S.D.A. S.C.S. Misc. Pub.* 548, 1944, pp. 16.
- (75)631.47 Harrison, R. W. ; Searfoss, P. L. Classification of agricultural areas, Frederick County, Maryland. *Md. Agric. Expt. Sta. Bull.* 440, 1941 (225-246). E.S.R. 86 (692).
- VII, 4 (75)631.47—Gibson, W. L., Jr. An economic land classification of Halifax County. *Va. Agric. Expt. Sta. Tech. Bull.* 86, 1943, pp. 50.
- (75)631.81—Obenshain, S. S. ; Gish, P. T. Relation of fertilizer practices to certain important soil types of the limestone valley and uplands of Virginia. *Va. Agric. Expt. Sta. Bull.* 351, 1943, pp. 19. E.S.R. 90 (313).
- VI, 1 (75)631.84 Gish, P. T. Application of commercial nitrogenous fertilizers to Berks silt loam soil is profitable. *Va. Agric. Expt. Sta. Bull.* 337, 1942, pp. 12. C.A. 36 (6737).
- (75)631.851—Mansfield, G. R. Phosphate resources of Florida. *U.S. Geol. Surv. Bull.* 934, 1942, pp. 81. C.A. 37 (4993).
- (75)633.16-1.5—Rothgeb, R. G. ; Kemp, W. B. Winter barley in Maryland. *Md. Agric. Expt. Sta. Bull.* 416, 1938 (239-257).
- (75)633.2.03-1.5—Woodhouse, W. W., Jr. ; Lovvorn, R. L. Establishing and improving permanent pastures in North Carolina. *N.C. Agric. Expt. Sta. Bull.* 338, 1942, pp. 24.
- (75)633.364-1.5—Warner, J. D. ; Blaser, R. E., et al. Annual lespedeza for Florida pastures. For northwest Florida. For peninsular Florida. *Fla. Agric. Expt. Sta. Bull.* 375, 1942, pp. 22. Biol. Abs. 17 (2177).
- (75)633.51-1.5—Jenkins, J. G. The growing of Sea Island cotton in the Coastal Plain of Georgia. *Ga. Coast. Pl. Expt. Sta. Bull.* 33, 1942, pp. 21. E.S.R. 88 (188).

# FERTILIZERS AND GENERAL AGRONOMY

- (75)633.52-1.5 Bledsoe, R. P. ; Thornton, G. D. Flax production in Georgia. *Ga. Expt. Sta. Circ.* 123, 1940, pp. 7. E.S.R. 84 (326).
- (75)633.52-1.5 Bunger, H. ; Taylor, J. L. ; Jones, C. A. Domestic flax : A report on its preparation and mill processing. *Cotton* 105, No. 12, 1941 (82-85, 126). E.S.R. 86 (618).
- (75)633.61-1.5 Bestor, H. A. Sugar cane growing in the Everglades. *Facts ab. Sug.* 36, No. 1, 1941 (19-25). IV, 3
- (75)633.71-1.5 Green, W. W. The production of sun-cured tobacco in Virginia. *Va. Agric. Expt. Sta. Bull.* 356, 1943, pp. 12. VII, 4
- (75)634.58-1.5 Parham, S. A. Peanut production in the Coastal Plain of Georgia. *Ga. Coast. Pl. Expt. Sta. Bull.* 34, 1942, pp. 19. E.S.R. 88 (188).
- (75)634.75-1.81 Lineberry, R. A. ; Collins, E. R. Fertilizing strawberries in North Carolina. *N.C. Agric. Expt. Sta. Bull.* 332, 1942, pp. 20. *Hort. Abs.* 12 (136).
- (75)635.64-1.5 Hester, J. B. Tomato plant production in the South. *Amer. Fert.* 94, No. 12, 1941 (5-8, 24, 26) ; 95, No. 1, 1941 (9-11, 26).
- (76)553.97 Dodson, W. R. Observations and studies on the peat deposits of Louisiana. *La. Agric. Expt. Sta. Bull.* 343, 1942, pp. 27. E.S.R. 87 (633).
- (76)631.4 Gibson, J. S. The Alabama Black Belt : its geographic status. *Econ. Geol.* 17, 1941 (1-23).
- (76)631.4 Holmes, R. S. ; Hearn, W. E. Chemical and physical properties of some of the important alluvial soils of the Mississippi drainage basin. *U.S.D.A. Tech. Bull.* 833, 1942, pp. 81.
- (76)631.4 United States Department of Agriculture. The agriculture, soils, geology, and topography of the Blacklands Experimental Watershed, Waco, Texas. *U.S.D.A. Hydrol. Bull.* 5, 1942, pp. 38. E.S.R. 89 (518).
- (76)631.4 Vanderford, H. B. Knowledge of soils essential to South. *Better Crops with Plant Food* 28, No. 6, 1944 (13-18, 45).
- (76)631.416.4 Volk, N. J. Available potassium in Alabama soils. *Better Crops with Plant Food* 25, No. 4, 1941 (6-8, 38-42).
- (76)631.416.4 Sturgis, M. B. Potassium content and potash requirements of Louisiana soils. *Better Crops with Plant Food* 28, 1944 (6, 51).
- (76)631.459 Mississippi Agricultural Experiment Station. Soil erosion studies. *Miss. Farm Res.* 4, No. 11, 1941 (4-5). E.S.R. 86 (447).
- (76)631.459 : 631.61 Bentley, M. R. Recommended conservation practices in Texas. *Agric. Engng.* 22, 1941 (284). *Herb. Abs.* 12 (16).
- (76)631.459 : 631.61 Dale, T. Conservation farming for the hard lands of the southern Great Plains. *U.S.D.A. Soil Conserv. Serv.* 1941, pp. 27. E.S.R. 86 (448).
- (76)631.459 : 631.61 Dale, T. Conservation farming for the sandy lands of the southern Great Plains. *U.S.D.A. Soil Conserv. Serv.* 1941, pp. 25. E.S.R. 86 (447).
- (76)631.459 : 631.61 McCorkle, J. S. ; Dale, T. Conservation practices for the range lands of the southern Great Plains. *U.S.D.A. Soil Conserv. Serv.* 1941, pp. 32. E.S.R. 86 (448).



# BIBLIOGRAPHY OF SOIL SCIENCE

- (76)631.459 : 631.61—Daniel, H. A. ; Elwell, H. M. ; Murphy, H. F. Conservation and better land use for Oklahoma. *Okla. Agric. Expt. Sta. Bull.* 257, 1942, pp. 53. E.S.R. 87 (638).
- (76)631.459 : 631.61 : 016—Drake, K. Soil defense in Oklahoma : A bibliography of soil conservation publications. *Okla. Agric. Expt. Sta. Circ.* 97, 1942, pp. 16. E.S.R. 87 (344).
- (76)631.47—Gile, B. M. Economic utilization of rural land resources in Beauregard Parish, Louisiana. *La. Agric. Expt. Sta. Bull.* 322, 1940, pp. 35. E.S.R. 84 (405).
- (76)631.47—Booth, A. W. The soil factor and land use in Barbour county, Alabama. *Trans. Ill. St. Acad. Sci.* 34, 1941 (137-139). *Herb. Abs.* 13 (95).
- (76)631.47—Belden, A. A statistical delimitation of land-use regions in Oklahoma. *Proc. Okla. Acad. Sci.* 22, 1942 (195). *Herb. Abs.* 13 (196).
- (76)631.47—Hewes, L. Indian land in the Cherokee country of Oklahoma. *Econ. Geog.* 18, 1942 (401-412).
- (76)631.473—Ewing, J. A. Experiences of a county agent in using soil maps in Tennessee. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (427-430). *Biol. Abs.* 17 (2178).
- (76)631.48—Sturgis, M. B. ; McMichael, C. W. The genesis and morphology of the soils of the Lower Mississippi deltas. *Proc. Soil Sci. Soc. Amer.* (1939) 4, 1940 (358-359).
- (76)631.58—Daniel, H. A. ; Fennell, H. H. Climatic conditions and suggested cropping systems for northwestern Oklahoma. *Okla. Agric. Expt. Sta. Circ.* 83, 1939, pp. 26.
- (76)631.58—Nicholls, W. D. ; Byers, G. B. ; Bondurant, J. H. Systems of farming for the Central Bluegrass region of Kentucky. *Ky. Agric. Expt. Sta. Bull.* 419, 1941 (265-319). E.S.R. 87 (130).
- (76)631.811—Kuykendall, R. Fertilizer response and requirements for profitable crop production in the Yazoo-Mississippi Delta. *Miss. Agric. Expt. Sta. Bull.* 333, 1939, pp. 11.
- (76)631.811—Mississippi Agricultural Experiment Station. Fertilizers and soils for crop production. *Miss. Farm Res.* 4, No. 11, 1941 (3-4). E.S.R. 86 (449).
- (76)631.851—Straw, H. T. Phosphate lands of Tennessee. *Econ. Geog.* 17, 1941 (93-104).
- (76)633.1-1.5—Kuykendall, R. Small grain production in the Yazoo-Mississippi Delta. *Miss. Agric. Expt. Sta. Bull.* 334, 1939, pp. 19.
- (76)633.13-1.5—Kuykendall, R. ; Pittner, J. ; O'Kelly, J. F., et al. Oats in Mississippi. *Miss. Agric. Expt. Sta. Bull.* 348, 1940, pp. 22.
- (76)633.16-1.5—Atkins, I. M. ; Dunkle, P. B. Barley production in Texas. *Tex. Agric. Expt. Sta. Bull.* 605, 1941, pp. 35.
- (76)633.18-1.81—Wyche, R. H. Fertilizer for rice in Texas. *Tex. Agric. Expt. Sta. Bull.* 602, 1941, pp. 18.
- (76)633.2.03—Bennett, H. W. Pastures in Mississippi. A preliminary report. *Miss. Agric. Expt. Sta. Bull.* 356, 1941, pp. 39.
- (76)633.2.03-1.81—Mayton, E. L. Fertilizer requirements for permanent pastures in Alabama. *Better Crops with Plant Food* 28, No. 6, 1944 (6-9, 48-49).

# FERTILIZERS AND GENERAL AGRONOMY

(76)633.3—Kuykendall, R. Legumes for crop production in the Yazoo-Mississippi Delta. *Miss. Agric. Expt. Sta. Bull.* 345, 1940, pp. 27.

(76)633.3-1.81—Davis, F. L.; Hobgood, C. G.; Brewer, C. A., Jr. Growing winter legumes in Louisiana. *La. Agric. Expt. Sta. Bull.* 318, 1940, pp. 28. E.S.R. 84 (320).

(76)633.491-1.5—LeClerc, E. L. Potato production in the Southern States. *U.S.D.A. Farm. Bull.* 1904, 1942, pp. 44.

(76)633.51-1.5—Hosking, H. R. The American cotton-growing industry: some impressions—II. *E. Afric. Agric. J.* 6, 1940 (98-102).

(76)634.75-1.5—Darrow, G. M. Strawberry culture: South Atlantic and Gulf Coast regions. *U.S.D.A. Farm. Bull.* 1026, 1940, pp. 40.

(76)634.9-1.4—Harper, H. J. Relation of climatic conditions, soil characteristics, and tree development in the Southern Great Plains region. *Proc. Soil Sci. Soc. Amer.* (1946) 5, 1941 (327-335).

(76)635-1.67—Pickett, B. S.; Brooks, L. E. Vegetable adaptability in the Wichita Valley. *Tex. Agric. Expt. Sta. Bull.* 610, 1942, pp. 36.

(76)635.964-1.5—Sturkie, D. G.; Fisher, H. S. The planting and maintenance of lawns. *Ala. Agric. Expt. Sta. Circ.* 85, 1942, pp. 20.

(77)551.311.33—Smith, G. D. Illinois loess—variations in its properties and distribution: pedologic interpretation. *Ill. Agric. Expt. Sta. Bull.* 490, 1942 (138-184).

(77)631.4—Rost, C. O.; Maehl, K. A. Some solodized soils of the Red River Valley. *Soil Sci.* 55, 1943 (301-312).

(77)631.4 : 581.5—Chapman, A. G. Forests of the Illinoian till plain of southeastern Indiana. *Ecology* 23, 1942 (189-198).

(77)631.4 : 581.5—Erickson, R. O.; Brenner, L. G.; Wraight, J. Dolomitic glades of east-central Missouri. *Ann. Missouri Bot. Gard.* 29, 1942 (89-101).

(77)631.411.4—Harmer, P. M. The muck soils of Michigan, their management and uses. *Mich. Agric. Expt. Sta. Spec. Bull.* 314, 1941, pp. 128. E.S.R. 86 (741).

(77)631.414.2 : 546.72—Krusekopf, H. H. The hardpan soils of the Ozark Region. *Proc. Soil Sci. Soc. Amer.* (1942) 7, 1943 (434-436). *Biol. Abs.* 17 (2180).

(77)631.44—Bushnell, T. M. An outline of the classification of Indiana soils. *Proc. Indiana Acad. Sci.* 55, 1939 (151-158). E.S.R. 86 (446).

(77)631.459—Clark, N. Soil erosion. *Wis. Univ. Ext. Serv. Coll. Agric. Circ.* 311, 1940, pp. 24.

(77)631.459 : 631.61—Aikman, J. M.; Boyd, I. L. Adaptation studies of plants for soil conservation purposes in southern Iowa. *Proc. Iowa Acad. Sci.* 48, 1941 (117-121). *Herb. Abs.* 12 (120).

(77)631.459 : 631.61—Rule, G. K. Toward soil security on the northern Great Plains. *U.S.D.A. Farm. Bull.* 1864, 1941, pp. 79.

(77)631.47—Kohlmeyer, J. B. Major land use problems in Martin County, Indiana, with suggestions for programs and policies. *Indiana Agric. Expt. Sta. Bull.* 453, 1940, pp. 34. E.S.R. 85 (830).

VI, 1

V, 5

# BIBLIOGRAPHY OF SOIL SCIENCE

- IV, 6 (77)631.47--Odell, R. T. ; Smith, G. D. A study of crop yield records by soil types. *Proc. Soil Sci. Soc. Amer.* (1940) 5, 1941 (316-321).
- (77)631.47--Veatch, J. O. Agricultural land classification and land types of Michigan. *Mich. Agric. Expt. Sta. Spec. Bull.* 231, 1941, pp. 67. (First revision.) Herb. Abs. 13 (3). Biol. Abs. 17 (578).
- VII, 2 (77)631.47--Halverson, L. H. Borderland of the Wisconsin driftless area. *Econ. Geol.* 18, 1942 (79-86). Herb. Abs. 13 (196).
- (77)631.47 : 631.612--Moore, H. R. ; Headington, R. C. Agriculture and land use as affected by strip mining of coal in eastern Ohio. *Ohio Agric. Expt. Sta. Bim. Bull.* 25, 1940 (174-177).
- (77)631.48--Conrey, G. W. The origin of Ohio soils. *Ohio J. Sci.* 41, 1941 (201-206). Biol. Abs. 16 (220).
- (77)631.58--Morison, F. L. ; Falconer, J. I. The relationship between soil maintenance and profitable farming. *Ohio Agric. Expt. Sta. Bull.* 604, 1939, pp. 32.
- (77)631.58--Smith, F. V. The management of farms in the limestone area of south-central Indiana, with special reference to the provision and utilization of pasture. *Indiana Agric. Expt. Sta. Bull.* 473, 1942, pp. 51. E.S.R. 88 (837).
- (77)631.582--Etheridge, W. C. Efficiencies of the lespedeza-small grain annual rotation in Missouri. *J. Amer. Soc. Agron.* 35, 1943 (212-215).
- (77)631.582--McIlvaine, T. C. ; Pohlman, G. G. Crop rotation experiments in the Ohio Valley (1925-1936). *W. Va. Agric. Expt. Sta. Bull.* 306, 1943, pp. 32. E.S.R. 88 (756).
- (77)632.19 : 546.711--Cook, R. L. ; Millar, C. E. Manganese for oats and white beans in Michigan. *Proc. Soil Sci. Soc. Amer.* (1941) 6, 1942 (224-227).
- (77)633.11-1.5--Brown, H. M. Spelt in Michigan. *Mich. Agric. Expt. Sta. Circ.* 180, 1942, pp. 12. E.S.R. 87 (217).
- (77)633.15-1.81--Scarseth, G. D. ; Cook, H. L. ; Krantz, B. A., et al. How to fertilize corn effectively in Indiana. *Indiana Agric. Expt. Sta. Bull.* 482, 1943, pp. 39. E.S.R. 89 (661).
- (77)633.2.03-1.5--Anderson, H. O. ; Welch, C. H., Jr. ; Pond, G. A. Pasture production and use : A study in Houston County, Minnesota. *Minn. Agric. Expt. Sta. Bull.* 368, 1943, pp. 18. E.S.R. 89 (659).
- (77)633.34-1.5--Dyas, E. S. Soybean production in Iowa. *Iowa Agric. Expt. Sta. Bull.* 130, 1941 (36-47).
- (77)633.52-1.5--Dillman, A. C. ; Stoa, T. E. Flaxseed production in the North Central States. *U.S.D.A. Farm. Bull.* 1747, 1942, pp. 19.
- (77)633.522-1.5--Wilsie, C. P. ; Dyas, E. S. ; Norman, A. G. Hemp, A war crop for Iowa. *Iowa Agric. Expt. Sta. Bull.* 149, 1942 (587-590). Biol. Abs. 17 (1069).
- (77)633.63-1.5--Culbertson, J. O. Sugar beet culture in Minnesota. *Minn. Agric. Expt. Sta. Bull.* 349, 1940, pp. 24. F.a.S. 36, 1 (33).
- (77)633.63-1.67--Nuckols, S. B. Sugar-beet culture under irrigation in the northern Great Plains. *U.S.D.A. Farm. Bull.* 1867, 1941, pp. 52.

# FERTILIZERS AND GENERAL AGRONOMY

- (77)633.71-1.4—Johnson, J. ; Ogden, W. B. A survey of tobacco soils in Wisconsin, with particular reference to tobacco quality. *Wis. Agric. Expt. Sta. Res. Bull.* 142, 1942, pp. 23.
- (77)634.25-1.5—Johnston, S. Peach culture in Michigan. *Mich. Agric. Expt. Sta. Circ. Bull.* 177, 1941, pp. 86.
- (77)634.5-1.5—Talbert, T. J. Nut tree culture in Missouri. *Missouri Agric. Expt. Sta. Bull.* 454, 1942, pp. 32. E.S.R. 88 (483).
- (77)634.75-1.5—Talbert, T. J. ; Hibbard, A. D. Commercial strawberry culture in Missouri. *Missouri Agric. Expt. Sta. Circ.* 216, 1941, pp. 24. E.S.R. 86 (630).
- (77)634.75-1.5—Havis, L. Strawberry production in Ohio. *Ohio Agric. Expt. Sta. Bull.* 626, 1942, pp. 41. E.S.R. 87 (63).
- (77)634.9-1.4—Rost, C. O. ; Soine, O. C. Characteristics of some forest soils developed on the young red (Patrician) drift. *Minn. Acad. Sci. Proc.* 6, 1938 (59-64). E.S.R. 83 (310).
- (78)631.416—Burke, E. ; Morris, H. E. Some causes of infertility in Montana soils. *Mont. Agric. Expt. Sta. Circ.* 164, 1941, pp. 23. E.S.R. 86 (449).
- (78)631.416—Smith, A. W. ; Rhoades, H. F. Physical and chemical properties of soil profiles of the Scott, Fillmore, Butler, Crete and Hastings series. *Neb. Agric. Expt. Sta. Res. Bull.* 126, 1942, pp. 42. C.A. 36 (7201). E.S.R. 87 (634).
- (78)631.416—Wynd, F. L. ; Romig, J. R. Chemical characteristics of soil in the vicinity of Midland, Douglas County, Kansas. *Soil Sci.* 56, 1943 (135-142).
- (78)631.459—Dunmire, R. G. Erosion and related land use conditions on the West Taury Creek demonstration project, Kansas. *U.S.D.A. Soil Conserv. Serv. Erosion Surv.* No. 21, 1940, pp. 25. E.S.R. 86 (298).
- (78)631.459—Mortlock, H. C. ; Greenawalt, R. D. Erosion and related land use conditions on the Box Elder Creek project, Nebraska. *U.S.D.A. Soil Conserv. Serv. Erosion Surv.* No. 22, 1941, pp. 34. E.S.R. 87 (25).
- (78)631.466.1—Thomas, W. D., Jr. A survey of northern Colorado flora bearing mycorrhizae. *J. Colo.-Wyo. Acad. Sci.* 3, 1941 (37-38). R.A.M. 21 (313).
- (78)631.47—Davis, C. M. Changes in land utilization on the plateau of northwestern Colorado. *Econ. Geol.* 18, 1942 (379-388).
- (78)631.582—Hume, A. N. ; Joy, E. ; Franzke, C. Twenty-one years of crop yields from Cottonwood experimental farm. *S. Dak. Agric. Expt. Sta. Bull.* 312, 1937, pp. 79. B.C.A.B. III, 1942 (7).
- (78)631.67—Wood, I. D. Irrigation and the war effort. *Agric. Engng.* 24, 1943 (231-234) VI, 4
- (78)631.81—Post, A. H. Fertilizer investigations in Montana in 1940. *Mont. Agric. Expt. Sta. Bull.* 395, 1941, pp. 17. E.S.R. 86 (467).
- (78)633.17-1.5—Swanson, A. F. ; Laude, H. H. Sorghums for Kansas. *Kans. Agric. Expt. Sta. Bull.* 304, 1942, pp. 63. Herb. Abs. 14 (28). Biol. Abs. 18 (361).
- (78)633.2.03—Larson, F. ; Whitman, W. A comparison of used and unused grassland mesas in the badlands of South Dakota. *Ecology* 23, 1942 (438-445). VI, 2

# BIBLIOGRAPHY OF SOIL SCIENCE

- (78)633.2.03-1.61—Allred, B. W. Range conservation practices for the Great Plains. *U.S.D.A. Misc. Pub.* 410, 1940, pp. 20.
- (78)633.2.03-1.61—Nelson, E. W.; Shepherd, W. O. Restoring Colorado's range and abandoned croplands. *Colo. Agric. Expt. Sta. Bull.* 459, 1940, pp. 31.
- (78)633.262-1.5—Frolík, A. L.; Newell, L. C. Bromegrass production in Nebraska. *Nebr. Agric. Expt. Sta. Circ.* 68, 1941, pp. 16. E.S.R. 85 (184).
- (78)633.34-1.5—Stoa, T. E. Soy beans in North Dakota. *N. Dak. Agric. Expt. Sta. Bmo. Bull.* 3, No. 4, 1941 (3-5). E.S.R. 85 (188).
- (78)633.34-1.5—Kiesselbach, T. A.; Lyness, W. E. Soybean production in Nebraska. *Nebr. Agric. Expt. Sta. Bull.* 339, 1942, pp. 18.
- (78)633.52-1.5—Hopper, T. H.; Johnson, M. Flax production and climate of North Dakota and Minnesota 1919-1937. *N. Dak. Agric. Expt. Sta. Bull.* 298, 1941, pp. 71.
- (78)633.63-1.67—Lambrecht, G. H.; Ruden, W. L. Sugar beet costs and management in irrigated sections of western Nebraska. *Nebr. Agric. Expt. Sta. Bull.* 341, 1942, pp. 20.
- (78)634-1.5—Barnett, R. J. Growing an orchard in Kansas. *Kans. Agric. Expt. Sta. Bull.* 290, 1940, pp. 47.
- (78)635.34-1.5—Kraus, J. E. Chinese cabbage varieties, their classification, description, and culture in the central Great Plains. *U.S.D.A. Circ.* 571, 1940, pp. 20. E.S.R. 84 (331).
- (78)635.64-1.5—Decker, S. W.; Arnsteln, W. G. Tomato production in Kansas. *Kans. Agric. Expt. Sta. Bull.* 313, 1943, pp. 30.
- (78)635.65-1.5—Culbert, J. I. Pinto beans in the Estancia Valley of New Mexico. *Econ. Geol.* 17, 1941 (50-60).
- (79)631.417.2—Stephenson, R. E. Humus for Oregon soils. *Ore. Agric. Expt. Sta. Circ.* 143, 1941, pp. 23. Biol. Abs. 16 (1632).
- (79)631.432—Bird, J. A. Western ground waters and food production. *U.S.D.A. Misc. Pub.* 504, 1942, pp. 40. E.S.R. 88 (827).
- (79)631.459:631.61—Rule, G. K.; Netterstrom, R. W. Soil defense in the Pacific Southwest. *U.S.D.A. Farm. Bull.* 1848, 1940, pp. 55.
- (79)631.47—Storie, R. E. Natural land divisions of Santa Cruz County, California: their utilization and adaptation. *Calif. Agric. Expt. Sta. Bull.* 638, 1940, pp. 56. E.S.R. 84 (298).
- (79)631.47—Walker, R. H.; Jennings, D. S. Soil survey and land classification in Utah. *Proc. Utah Acad. Sci.* 17, 1940 (4-5). Herb. Abs. 12 (222).
- (79)631.58—Carpenter, G. A.; Clawson, M.; Fleming, C. E. Ranch organization and operation in northeastern Nevada. *Nev. Agric. Expt. Sta. Bull.* 156, 1941, pp. 81. E.S.R. 87 (130).
- (79)631.586—Bracken, A. F. Dry farming as developed in the sagebrush zone. *Proc. Utah Acad. Sci.* 17, 1940 (25-32). Herb. Abs. 12 (241).
- (79)631.67—Pillsbury, A. F. Observations on use of irrigation water in Coachella Valley, California. *Calif. Agric. Expt. Sta. Bull.* 649, 1941, pp. 48. E.S.R. 86 (99).

## FERTILIZERS AND GENERAL AGRONOMY

- (79)631.67—Powers, W. L. ; Lewis, M. R. Irrigation requirement of arable Oregon soils. *Oreg. Agric. Expt. Sta. Bull.* 394, 1941, pp. 40.
- (79)631.81—Wheeting, L. C. Cooperative field experiments with commercial fertilizer mixtures. *Wash. Agric. Expt. Sta. Bull.* 392, 1940, pp. 45. IV, 4
- (79)631.81—Maynard, B. E. Some early experiences with fertilizer on the Pacific Coast. *Better Crops with Plant Food* 25, No. 4, 1941 (9-11, 36-37).
- (79)631.81—Pittman, D. W. ; Thorne, D. W. Fertilizers for Utah soils. *Utah. Agric. Expt. Sta. Circ.* 116, 1941, pp. 20.
- (79)631.81—Powers, W. L. ; Ruzek, C. V. Twenty-two years of soil fertility investigations in the Willamette Valley, Oregon. *Oreg. Agric. Expt. Sta. Bull.* 387, 1941, pp. 23.
- (79)631.81—Wheeting, L. C. ; Overholser, E. L. ; Vandecaveye, S. C. The farmer's fertilizer handbook. *Wash. Agric. Expt. Sta. Pop. Bull.* 165, 1942, pp. 15.
- (79)631.851—Williams, J. S. Phosphate in Utah. *Utah Agric. Expt. Sta. Bull.* 290, 1939, pp. 44.
- (79)631.851—Williams, J. S. ; Hanson, A. M. Phosphate reserves of Utah. Revised estimate. *Utah Agric. Expt. Sta. Bull.* 304, 1942, pp. 24.
- (79)633.2.03-1.67—Fleming, C. E. ; Brennen, C. A. Possibilities and limitations in the use of irrigated land for forage production in northeastern Nevada. *Nev. Agric. Expt. Sta. Bull.* 154, 1940, pp. 34.
- (79)633.2.03-1.67—Jones, B. J. ; Brown, J. B. Irrigated pastures in California. *Calif. Agric. Ext. Serv. Circ.* 125, 1942, pp. 47. *Biol. Abs.* 17 (1279).
- (79)633.52-1.5—Schafer, E. G. Fiber flax in Western Washington. *Wash. Agric. Expt. Sta. Pop. Bull.* 166, 1942, pp. 11.
- (79)633.63-1.5—Tolman, B. ; Murphy, A. Sugar-beet culture in the intermountain area with curly top resistant varieties. *U.S.D.A. Farm. Bull.* 1903, 1942, pp. 52.
- (79)633.79-1.5—Hollands, H. F. ; Hurd, E. B. ; Pubols, B. H. Economic conditions and problems of agriculture in the Yakima Valley, Washington. Part IV. Hop farming. *Wash. Agric. Expt. Sta. Bull.* 414, 1942, pp. 39. *Hort. Abs.* 13 (17).
- (79)633.812.687-1.5—Becker, T. E. ; Isler, E. J. ; Goodrich, F. J. Cultivation of fennel in Washington. *J. Amer. Pharm. Assoc.* 29, 1940 (499). *Biol. Abs.* 15 (985).
- (79)633.913—Hall, H. M. ; Goodspeed, T. H. A rubber plant survey of Western North America. *Univ. Calif. Pub. Bot.* 7, 1919, repr. 1942 (159-278). *Hort. Abs.* 13 (176).
- (79)634-1.5—Hurd, E. B. ; Heislé, C. P. ; Clawson, M., et al. Economic conditions and problems of agriculture in the Yakima Valley, Washington. Part III. Fruit farming. *Wash. Agric. Expt. Sta. Bull.* 409, 1941, pp. 97.
- (79)634.75-1.5—Darrow, G. M. ; Waldo, G. F. Strawberry culture: western United States. *U.S.D.A. Farm. Bull.* 1027, 1941, pp. 26. *R.A.M.* 21 (340).
- (79)634.76—Seeman, A. L. Cranberry industry of the Pacific Coast. *Econ. Geog.* 17, 1941 (180-186).

## BIBLIOGRAPHY OF SOIL SCIENCE

(798)553.97—Dachnowski-Stokes, A. P. Peat resources in Alaska. *U.S.D.A. Tech. Bull.* 769, 1941, pp. 84.

(798)63—Rockie, W. A. A picture of Matanuska. *Geog. Rev.* 32, 1942 (353-371). *Herb. Abs.* 12 (210).

(798)633.2 3—Alaska University. Cultivated grasses and legumes in Alaska. *Alaska Univ. Ext. Circ.* 2, 1942, pp. 4. E.S.R. 88 (43).

### (8) SOUTH AMERICA

(8)631.4—Hardy, F. The soils of South America. *Chron. Bot.* 7, 1942 (211-217). *Biol. Abs.* 17 (1070).

(8)631.459—Bennett, H. H. Soil and the Americas in the post-war era. *Land Policy Rev.* 6, No. 2, 1943 (31-34).

VII, 1 (8)631.459—Maes, E. E. Soil conservation in South America. *Agric. in Americas* 3, 1943 (123-127).

(8)631.459—Roseveare, G. M. Plant cover versus erosion in Latin America. *Herb. Abs. Suppl.* 13, 1943 (545-553).

(8)633.2 3-1.582—Roseveare, G. M. Grasses and legumes for rotations in South America. *Herb. Abs. Suppl.* 12, No. 2, 1942 (830-835).

(8)633.854.56-1.5—Wooster, J. L. Tung growing in Latin America. *Agric. in Americas* 3, 1943 (29-33).

(8)63—Keeler, I. P.; Lankenau, R. F. Agriculture in the São Paulo-Northern Paraná region. *Foreign Agric.* 5, 1941 (263-280).

IV, 4 (8)631.4—Setzer, J. The soils of the State of São Paulo. III. General survey of their chemical requirements. *Inst. Agron. Campinas Bol. Tec.* 70, 1940, pp. 37. [Pt.]

(8)631.4—Duarte, P. J. The relation "soil texture-organic matter" in the soils of Pesqueira. *Arch. Inst. Pesquisas Agron.* 3, 1941 (75-79). *Biol. Abs.* 17 (2410).

(8)631.4—Netto, J. E. de P. Notes on the soils of the Lameira Experiment Station. *Bragantia* 1, 1941 (611-617). C.A. 36 (3603).

(8)631.4—Setzer, J. Some characteristics of the principal soils of the State of São Paulo. *Bragantia* 1, 1941 (255-359). [Pt.c.]

(8)631.4—Setzer, J. Estimating the fertility of soil. *Bragantia* 1, 1941 (361-432). [Pt.c.]

(8)631.4—Setzer, J. A summary estimation of chemical quality of the soils of the State of São Paulo. *Bol. Agric. S. Paulo* (1940), 1941 (317-324). [Pt.]

(8)631.4—Setzer, J. The principal soil types of São Paulo. *Secretaria da Agric., São Paulo* 1941, pp. 16. [Pt.]

(8)631.4—Setzer, J. The present state of the soils of the territory of Campinas, São Paulo. *Rev. Brasil. Geog.* 4, 1942 (39-62). [Pt.c.f.g.i.sp.esp.]

(8)631.4:549—Barreto, A. Montmorillonite and some Brazilian soils. *Bol. Soc. Brasil. Agron.* 4, 1941 (195-200). *Biol. Abs.* 16 (723).

(8)631.4:581.5—Schmidt, F. M. Ecological study of clay soils. *Bol. Min. Agric. Rio de J.* 30, 1941 (41-59). *Biol. Abs.* 17 (1369).

VII, 3 (8)631.414.2—Paiva Neto, J. E. de The "clay" fraction of the soils of the State of São Paulo (Brazil) and their X-ray examination. *Rev. Brasil. Quim.* 16, 1943 (99-115). C.A. 38 (1059).

# FERTILIZERS AND GENERAL AGRONOMY

- (81)631.415.1—Setzer, J. The distribution of pH values in soils of the State of São Paulo. *Rev. Brasil. Quím.* 11, 1941 (101-103). [Pt.]
- (81)631.416.871.1—Netto, J. E. de P. Manganese in the soil of the state of São Paulo. III. *An. Assoc. Quím. Brasil* 1, 1942 (159-189). B.C.A.A. III, 1943 (74).
- (81)631.459 : 631.61—Gehlsen, C. A. Measures taken in north-eastern Brazil for the control of drought and soil erosion. *Mo. Bull. Agric. Sci. Pract.* 32, 1941 (117T-133T).
- (81)631.47—Rhoad, A. O. Land uses and trends in central Minas Gerais. *Proc. Eighth Amer. Sci. Cong.* 5, 1942 (113-117). Biol. Abs. 17 (2411).
- (81)631.471—Setzer, J. Modern directions for soil surveying (in Brazil). *Bol. Soc. Brasil. Agron.* 4, 1941 (388-400). [Pt.] V, 6
- (81)631.473—Setzer, J. Progress of the agro-geological survey of the State of São Paulo, undertaken by the Soils Section of the State Institute of Agronomics, Campinas. *Rev. Politéc.* No. 137, 1941 (3-8). [Pt.]
- (81)633.18-1.4—Setzer, J. Tentative study of a rice soil. *Rev. Agric. Piracicaba* 16, 1941 (10-22). [Pt.]
- (81)633.491-1.81—Azevedo, C. ; Gurgel, J. T. A. An experiment in potato manuring in the Ponta Grossa district, State of Paraná. *J. Agron. S. Paulo* 3, 1940 (145-181). [Pt.e.]
- (81)633.492-1.5—Gonçalves, A. P. Cultivation of sweet potatoes. *Ceres* 1, 1939 (170-176). Hort. Abs. 10 (284). [Pt.]
- (81)633.51-1.5—Morgenroth, E. The cultivation of cotton in Brazil. *ForschDienst.* 13, 1942 (341-346). [G.]
- (81)633.682-1.5—Pickles, A. Cassava in the Amazon Valley. *Proc. Agric. Soc. Trin. Tob.* 42, 1942 (141, 143, 145, 147-149).
- (81)633.73-1.4—Morgenroth, E. Cultivation of coffee in the State of São Paulo, Brazil. *Deut. Forsch. Kol. Austral.* No. 8, 1942, pp. 32. Hort. Abs. 13 (195). VII, 2
- (81)633.74-1.5—Keithan, E. Cacao industry of Brazil. *Econ. Geog.* 15, 1939 (195-204). *Trop. Agric. Trin.* 19, 1942 (93-97).
- (81)633.912-1.5—Russell, J. A. Fordlandia and Belterra, rubber plantations on the Tapajós River, Brazil. *Econ. Geog.* 18, 1942 (125-145).
- (82)63—Parodi, L. R. Agriculture in the Argentina. *Chron. Bot.* 7, 1942 (19-23). Biol. Abs. 16 (1056). [Sp.]
- (82)631.4—Gollan, J., Jr. ; Cruellas, J. Chemical analysis of soils. *Rev. Cent. Estud. Ing. Quím. Univ. Santa Fé* No. 15, 1940 (43-63). C.A. 36 (2067).
- (82)631.4—Kühn, F. Some remarks in connexion with a second provisional soil map of Argentina. *Ernähr. Pfl.* 37, 1941 (45-48). [G.]
- (82)631.4—Paulsen, E. F. Preliminary note on the soil-study excursion in the mobile laboratory through the province of Córdoba. *Rev. Fac. Agron. B. Aires* 9, 1941 (115-125). [Sp.]
- (82)631.4—Paulsen, E. F. Notes on the pedo-hydrological excursion in the provinces of Córdoba, Santiago del Estero, Catamarca and La Rioja. *Rev. Fac. Agron. B. Aires* 9, 1942 (192-218). [Sp.e.pt.]



# BIBLIOGRAPHY OF SOIL SCIENCE

- (82)631.4—Paulsen, E. F. Report on the survey of the north-western and northern part of Argentina, conducted by means of the mobile laboratory of the Faculty, for the purpose of taking typical soil monoliths. *Rev. Fac. Agron. R. Aires* 10, 1943 (273-289). [Sp.e.pt.]
- (82)631.4—Peralta, P. E. Characteristics of the soils of the Delta. *Alman. Min. Agric. Argentina* 18, 1943 (373).
- (82)631.415.3—Paulsen, E. F. Some remarks on saline-alkali soils of the country. *J. Agron. Yel.* 1940 (167-174). [Sp.]
- (82)631.415.3—Paulsen, E. F.; Reichart, M. A. L.; Somoza, A. L. Study of some saline soils of Santiago del Estero. *J. Agron. Yel.* 1941 (193-223). [Sp.e.]
- (82)631.459—Liebermann, J. The problem of erosion in the regions served by the Pacific Railway. *Rev. B.A.P.* 23, 1940 (17-22). Herb. Abs. 12 (121).
- (82)631.459 : 551.55—Arenas, A.; Guñazú, J. R. Wind erosion of soils in west-central Argentina: preliminary survey of the effect of wind on the soils of La Pampa and adjacent zones. *Min. Agric. Argentina Pub. Misc.* 65, 1940, pp. 71. Herb. Abs. 12 (121). For. Abs. 4 (88). [Sp.]
- (82)631.459 : 551.55—Reichart, M. A. L. Wind erosion in the pampas of Argentina. *Soil Conservation* 7, 1942 (298-300).
- (82)633.2.03—Nyhus, P. O. Argentine pastures and the cattle-grazing industry. *Foreign Agric.* 4, 1940 (3-30).
- (82)633.52—Deasy, G. F. Distribution of flax production in Argentina. *Econ. Geog.* 19, 1943 (44-54).
- (829.1)581.5—Skottsberg, C. The Falkland Islands. *Chron. Bot.* 7, 1942 (23-25).
- (83)631.459 : 631.61—Jirkal, H. J. Better herbage. Importance of forage plants for soil conservation. *Campesino Santiago de Chile* 74, 1942 (280-281). Herb. Abs. 13 (197).
- (83)633.522—Ebert, M. H. The production of hemp seed and fibre. *Campesino Santiago de Chile* 75, 1943 (100, 106). [Sp.]
- (85)631.4—Neuman, R. Soil study, geography and geology of the Valley of the Saña. VII. Soil fertility. VIII. Classification. IX. Soil maps. *Bol. Comp. Admin. Guano* 18, No. 4, No. 5, 1942 (86-109; 123-148). Biol. Abs. 17 (577).
- (85)633.52-1.5—Marie, V. The cultivation of flax in Peru. *Peru Esta. Expt. Agric. La Molina Bol.* 21, 1940, pp. 18. [Sp.]
- (85)633.887.791-1.5—Ocampo, J. A. The cultivation and possibilities of pyrethrum in Peru. *Peru Esta. Expt. Agric. La Molina Circ.* 57, 1940, pp. 31. [Sp.]
- (86)581.5—Dugand, A. On the vegetation and plant resources of Colombia. *Chron. Bot.* 7, 1942 (71-75).
- (86)63—Wylie, K. H. The agriculture of Colombia. *Foreign Agric. Bull.* 1, 1942, pp. 160. E.S.R. 88 (840).
- (86)63—Pound, F. J. A bird's eye view of agriculture in Colombia. *Proc. Agric. Soc. Trin. Tob.* 43, 1943 (191, 193, 195, 197, 199, 201, 203).
- (86)631.416—Ancizar-Sordo, J. Conserving the fertility of our soils. *First Natl. Cattleman's Cong. Bogota, Colombia* (1941) 1942, pp. 16. C.A. 37 (1816).

# FERTILIZERS AND GENERAL AGRONOMY

- (862)581.5—Schery, R. W. A few facts concerning the flora of Panama. *Chron. Bot.* 7, 1942 (77-79).
- (866)63—Molestina, E. O. The agricultural riches of Ecuador. *Chron. Bot.* 7, 1942 (167-169). [Sp.]
- (87)581.5—Williams, L. Natural resources of Venezuela. *Chron. Bot.* 7, 1942 (75-77).
- (87)63—Wyllie, K. H. Venezuela's agricultural problem. *Foreign Agric.* 6, 1942 (227-253).
- (87)631.4—Bennett, H. H., et al. Land conditions in Venezuela and their relations to agriculture and human welfare. *U.S.D.A. Soil Conserv. Serv.* 1942, pp. 154. E.S.R. 90 (447).
- (87)631.61—Powers, W. L. The new reclamation era in Venezuela. *Agric. Engng.* 24, 1943 (345-346).
- (87)633.61-1.5—Pickles, A. Observations on sugar cane cultivation in Venezuela. *Trop. Agric. Trin.* 21, 1944 (64-66).
- (87)633.73-1.5—Jaramillo, J. H. Coffee in Venezuela. *Agric. Venezol.* 7, 1943 (20-23, 26-31, 33-37). *Hort. Abs.* 13 (195).
- (881)631.4—International Sugar Journal. The influence of ocean currents on soil deposit. *Int. Sug. J.* 45, 1943 (30). VI, 2
- (881)631.416.2 : 631.414.3—Bourne, C. L. C. Some preliminary experiments on phosphate fixation in British Guiana sugar cane soils. *Brit. Guiana Dept. Agric. Sug. Bull.* 10, 1941 (50-61). V, 2
- (881)633.61-1.51—Cameron, C.; Williams, C. H. B. The Cameron-Williams system for cane cultivation in British Guiana. *Brit. Guiana Dept. Agric. Sug. Bull.* 11, 1942 (54-57). VI, 1
- (881)633.61-1.81—Williams, C. H. B.; Cameron, C. Field experiments with sugar cane, X. *Brit. Guiana Dept. Agric. Sug. Bull.* 10, 1941 (1-41).
- (89)634.61—Bertoni, G. T. The Paraguay coconut (*Acrocomia totai*, Mart.). *Agric. Com. Indust. Rev. Paraguay* 1, No. 4, 1941 (36-50). *Biol. Abs.* 17 (1073).
- (89)63—Boerger, A. Plant resources of Uruguay. *Chron. Bot.* 7, 1942 (27-29). *Biol. Abs.* 16 (1225). [Sp.]
- (89)631.415.3—Arena, A.; Bentacur, M. O.; Ribeiro, R. The soil in the blanqueales (white spots) of Uruguay. *Arch. Fitotec. Uruguay* 3, 1940-41 (358-379). *Biol. Abs.* 18 (172). VII, 2
- (89)631.62—Caldevilla, G. M. The draining of the Carrasco Marshes. *Rev. Fac. Agron. Univ. Montevideo* 20, 1940 (23-161). *Herb. Abs.* 10 (368).
- (89)631.62—Laffitte, J. C. Results of studies on drainage and reforestation projects in the marshes of Carrasco. *Rev. Fac. Agron. Univ. Montevideo* 27, 1942 (9-137). *Biol. Abs.* 17 (1553).
- (89)633.18-1.4—Topolanski, E. M. Uruguay as a producer of rice. *Rev. Fac. Agron. Univ. Montevideo* 18, 1939 (37-68). C.A. 37 (1551). VII, 3
- (89)633.2.03-1.458—Fynn, C. A. The impoverishment in calcium of grazings in some zones of Uruguay. Supplementary mineral rations. *Rev. Fac. Agron. Univ. Montevideo* 21, 1940 (51-61). *Herb. Abs.* 11 (148).

# BIBLIOGRAPHY OF SOIL SCIENCE<sup>1</sup>

## (9) OCEANIA. ARCTIC AND ANTARCTIC REGIONS

- (914/63)—Pendleton, R. L. Impressions of the Philippines and of the United States. *Bull. Thailand Res. Soc.* 13, 1941 (1-20).
- (914/63)—Pendleton, R. L. Land utilization and agriculture of Mindanao, Philippine Islands. *Geog. Rev.* 32, 1942 (180-210).
- IV, 1 (914/631.416)—Clemente, A.; Belen, T. Analysis of some Philippine soils. *Nat. Appl. Sci. Bull.* 7, 1940 (337-340). C.A. 34 (6746).
- (914/633.15-1.811)—Madrigal, J., Jr. Determination of fertilizer requirements of corn plant when grown in Lipa clay loam. *Philipp. Agricult.* 29, 1941 (877-891).
- (914/633.18-2.19)—Agati, J. A.; Sison, P. L.; Abalos, R. A progress report on the rice maladies recently observed in Central Luzon with special reference to the "stunt or dwarf" disease: 1. *Philipp. J. Agric.* 12, 1941 (197-210).
- (914/634.573-1.5)—Morada, E. K. Cashew culture. *Philipp. J. Agric.* 12, 1941 (89-103). Hort. Abs. 11 (340).
- (914/634.58-1.5)—Ejercito, J. M.; Jamias, J. Peanut culture. *Philipp. J. Agric.* 12, 1941 (107-118). Hort. Abs. 11 (341).
- (92/63)—Ludejinsky, W. Agriculture of the Netherlands Indies. *Foreign Agric.* 4, 1940 (511-574).
- (92/631.4)—Marel, H. W. van der. Geological formations encountered on the east coast of Sumatra, with special reference to those in the neighbourhood of the Toba lake. *Bergcultures* 14, 1940 (1452-1460). [Du.]
- (92/631.4)—Venema, K. C. W. Some data on the influence of lime and sulphur on the red earths, ash soils and gray earths of Java. *Landbouwk. Tijdschr.* 53, 1941 (908-928). C.A. 37 (4513).
- (92/631.459)—Coster, C. Soil covers, soil type and erosion. *Bergcultures* 15, 1941 (488-498). [Du.]
- (92/631.459 : 631.61)—Joosten, J. H. L. Development of and problems resulting from the work done by the Agricultural Extension Service in the field of soil conservation in West Java. *Landbouw* 17, 1941 (1063-1080). Hort. Abs. 12 (166).
- (92/631.483)—Geus, J. G. de. Modes of weathering and stages of weathering of our upland plantation soils, with special reference to those of Soekanegara; and the consequences thereof as related to soil maintenance. *Bergcultures* 15, 1941 (736-749). [Du.]
- (92/631.81)—Penders, J. M. A. Possibilities of providing for the fertilizer requirements of the Netherlands East Indies from local sources. *Meded. Alg. Proefsta. Landbouw* 49, 1941, pp. 83. [Du.c.]
- (92/631.81)—Penders, J. M. A. Can the Netherlands East Indies become self-sufficient in fertilizers? *Bergcultures* 15, 1941 (1506-1510). [Du.]
- V, 4 (92/631.851)—Penders, J. M. A. Importance of phosphate in the agriculture of the Dutch Indies. *Natuurwet. Tijdschr. Ned. Ind.* 101, 1941 (281-291). B.C.A.B. III, 1942 (68).
- (92/633)—Coster, C. The work of the West Java Research Institute, Buitenzorg, 1938-41. *Emp. J. Expt. Agric.* 10, 1942 (22-30). Biol. Abs. 17 (251).

# FERTILIZERS AND GENERAL AGRONOMY

- (92)633.491-1.5—Dykstra, A. Potato culture in central Java. *Landbouw* 16, 1940 (471-489). Biol. Abs. 16 (1982).
- (92)635.34-1.5—Tohir, K. A. Cabbage growing in Djember. *Landbouw* 17, 1941 (129-135). Hort. Abs. 11 (237).
- (93)163—Aitken, M. Farming in New Zealand. Land under occupation. *N.Z. J. Agric.* 69, 1944 (37-41).
- (93)1631.4—Grange, L. I.; Taylor, N. H.; Sutherland, C. F., et al. Soils and agriculture of part of Waipa County. *N.Z. Dept. Sci. Indust. Res. Bull.* 76, 1939, pp. 85 + 4 folding maps.
- (93)1631.416.4—Cornes, J. J. S. Notes on water-softening properties and potash content of some New Zealand greensands. *N.Z. J. Sci. Tech.* 22, 1940 (353-373).
- (93)1631.416.873—Stanton, D. J. The cobalt content of some South Island (New Zealand) limestones. *N.Z. J. Sci. Tech.* 25A, 1944 (221-224). VII, 4
- (93)1631.459—Cumberland, K. B. A geographic approach to soil erosion in New Zealand. *Aust. Geog.* 4, 1943 (121-131). Herb. Abs. 14 (10).
- (93)1631.473—New Zealand Department of Scientific and Industrial Research. Soil survey—Tenth Annual Report. *N.Z. Dept. Sci. Indust. Res. Ann. Rept.* 1939-40, pp. 11.
- (93)1631.615—Syme, P. S. Studies in farm management: a Rodney gumland farm. *N.Z. J. Agric.* 68, 1944 (249, 251-254).
- (93)1631.816.23—Allo, A. V. Topdressing in the Auckland province. Review of field experiments in the Western Bay of Plenty. *N.Z. J. Agric.* 63, 1941 (499, 501-503). Biol. Abs. 16 (1869).
- (93)1631.816.23—Elliott, A. G. Pasture topdressing. Results from Heskett slag trials. *N.Z. J. Agric.* 64, 1942 (307-310).
- (93)1631.821.1—Walker, C. Shell lime deposits. *N.Z. J. Agric.* 62, 1941 (345).
- (93)1631.83—Grimmett, R. E. R.; Elliott, A. G. Possible replacement of imported potash from New Zealand sources. *N.Z. J. Agric.* 61, 1940 (167). IV, 1
- (93)1631.84—Elliott, A. G. Nitrogenous fertilizers. Sources of local supplies. *N.Z. J. Agric.* 61, 1940 (163-164). C.A. 35 (568).
- (93)1633.15-1.5—Allo, A. V. Maize and kumi kumis. Profitable crop in the Bay of Plenty. *N.Z. J. Agric.* 62, 1941 (331-332).
- (93)1633.2.03-1.5—Dalglish, C. S. Pasture establishment on the pumice soils. *N.Z. J. Agric.* 62, 1941 (321, 323-329). IV, 5
- (93)1633.2.03-1.5—McPherson, G. K. The establishment of pastures on better-class wheat-lands of Ashburton County. *N.Z. J. Agric.* 68, 1944 (115-118).
- (93)1633.52-1.5—Wilkie, D. R. Linen flax is a payable crop in Marlborough. *N.Z. J. Agric.* 62, 1941 (311-313).
- (93)1633.52-1.5—Beggs, J. P. The linseed crop in North Canterbury. *N.Z. J. Agric.* 67, 1943 (11-13). Hort. Abs. 13 (176).
- (93)1633.913—Grimmett, R. E. R. Can rubber be grown in New Zealand? *N.Z. J. Agric.* 65, 1942 (325-326).
- (93)1634.9-1.471—McKinnon, A. D. Soil survey and forest management. *N.Z. J. Forestry* 4, 1940-41 (296-299). For. Abs. 3 (285).
- (93)1635.25-1.5—Chamberlain, H. de O. Onion growing in the Manawatu. *N.Z. J. Agric.* 66, 1943 (355).

# BIBLIOGRAPHY OF SOIL SCIENCE<sup>36</sup>

- (94)63:355.01—**Journal of the Australian Institute of Agricultural Science**. Organising agriculture for war. *J. Aust. Inst. Agric. Sci.* 8, 1942 (43-50).
- (94)631.445.7:581.5—**Prescott, J. A.** The soils of tropical Australia. *Aust. Geog.* 4, 1941 (16-19). Herb. Abs. 11 (271).
- (94)631.47—**Taylor, J. K.** Land classification and utilization in Australia. *Proc. Sixth Pacific Sci. Cong.* 4, 1940 (961-968). Herb. Abs. 12 (118).
- (94)631.47—**Lowndes, A. G.** The natural land-use regions of tropical Australia. *Aust. Geog.* 4, 1941 (1-15). Herb. Abs. 11 (278).
- (94)633.491-1.5—**Bald, J. G.** A report on agricultural features of the Australian potato industry. *Aust. Coun. Sci. Indust. Res. Pamp.* 106, 1941, pp. 72.
- (94)631.416.856—**Beck, A. B.** A survey of the copper content of Western Australian pastures. *J. Dept. Agric. W. Aust.* 18, 1941 (285-300).
- V, 6 (94)631.416.856—**Teakle, L. J. H.** Copper deficient soils in Western Australia. *J. Aust. Inst. Agric. Sci.* 8, 1942 (70-72).
- IV, 6 (94)631.459—**Carroll, D. ; Clarke, E. de C.** Load carried by flood waters in the south-west. *J. Roy. Soc. W. Aust.* 26, 1939-40 (173-179).
- (94)631.459—**Australian Forestry.** Soil erosion in Western Australia. *Aust. Forestry* 6, 1941 (39-41). For. Abs. 3 (288).
- (94)631.47—**Bowman, R. C.** Prospects of land settlement in Western Australia. *Geog. Rev.* 32, 1942 (598-621). Herb. Abs. 13 (3).
- (94)631.473—**Bednall, B. H.** A soil survey of Myalup plantation (*P. pinaster*) area. *Aust. Forestry* 5, 1940 (120-128). For. Abs. 3 (21).
- (94)631.473—**Teakle, L. J. H. ; Southern, B. L. ; Stokes, S. J.** A soil survey of the Lakes District, Western Australia. *J. Dept. Agric. W. Aust.* 17, 1940 (251-294).
- (94)631.821.1—**Cariss, H. G. ; Burvill, G. H.** Lime in agriculture. Not a substitute for superphosphate. *J. Dept. Agric. W. Aust.* 20, 1943 (117-119).
- (94)633.1-1.5—**Thomas, I.** Field experiments with wheat and oats, 1940, at the Agricultural Research Stations. *J. Dept. Agric. W. Aust.* 18, 1941 (49-61).
- (94)633.11-1.557—**Gentilli, J.** Wheat yields and variability in West Australian districts, 1929-39. *J. Dept. Agric. W. Aust.* 18, 1941 (62-65).
- (94)633.71-1.5—**Smith, W. P. C. ; Sharp, A.** Field experiments with tobacco, season 1939-40. *J. Dept. Agric. W. Aust.* 18, 1941 (1-12).
- (94)633.854.56-1.5—**Powell, H. R.** Some facts relating to the growing of tung oil trees in Western Australia. *J. Dept. Agric. W. Aust.* 18, 1941 (228-229).
- (94)634-1.4:581.144.2—**Teakle, L. J. H. ; Jones, L. T.** Studies on orchard soils in Western Australia. *J. Dept. Agric. W. Aust.* 18, 1941 (220-227).
- (94)634.3-1.5—**Owen, R. C.** Citrus growing in Western Australia. *J. Dept. Agric. W. Aust.* 17, 1940 (445-462).

## FERTILIZERS AND GENERAL AGRONOMY

(942)631.4—Baldwin, J. G. ; Crocker, R. L. The soils and vegetation of portion of Kangaroo Island, South Australia. *Trans. Roy. Soc. S. Aust.* 65, 1941 (263-275).

(942)631.4—Waite Institute. The soil profile at the Waite Institute. *Rept. Waite Agric. Res. Inst.* (1939-1940), 1941 (56-57).

(942)631.4 : 581.5—Crocker, R. L. ; Skewes, H. R. The principal soil and vegetation relationships on Yudnapinna Station, north-west South Australia. *Trans. Roy. Soc. S. Aust.* 65, 1941 (43-60).

(942)631.411.4—Stephens, C. G. The pedology of a South Australian fen. *Trans. Roy. Soc. S. Aust.* 67, 1943 (191-199).

(942)631.459—Stephens, C. G. The hydrology of the Hundred of Belalie, County Victoria, South Australia, and its significance in soil conservation and flood control. *Trans. Roy. Soc. S. Aust.* 67, 1943 (62-67).

(942)631.473 Herriot, R. I. ; Johnston, E. J. A soil survey of the Waikerie Irrigation Area, South Australia. *Aust. Counc. Sci. Indust. Res. Bull.* 141, 1941, pp. 44.

(942)631.473 Stephens, C. G. ; Crocker, R. L. ; Butler, B., et al. A soil and land survey of the Hundreds of Riddoch, Hindmarsh, Grey, Young, and Nagwarry, County Grey, South Australia. *Aust. Counc. Sci. Indust. Res. Bull.* 142, 1941, pp. 55. C.A. 38 (445).

(942)631.61—Strong, T. H. Modern methods of clearing and developing poor land in South Australia. *J. Aust. Inst. Agric. Sci.* 7, 1941 (61-67).

(942)633.11-1.5—Bowden, O. Wheat growing in the Lower North of South Australia. *J. Dept. Agric. S. Aust.* 44, 1941 (399-416, 468-474).

(942)633.52-1.5—Bowden, O. Flax growing in cereal districts. *J. Dept. Agric. S. Aust.* 44, 1941 (422-427).

(942)635-1.81—Cook, L. J. ; McAuliffe, J. D. Manurial experiments on vegetables. *J. Dept. Agric. S. Aust.* 44, 1940 (200-202). B.C.A.B. 111, 1942 (8).

(943)631.4—Kerr, H. W. The recent Burdekin flood and its lesson. *Queensland Agric. J.* 54, 1940 (111-118). IV, 1

(943)631.4—Prescott, J. A. ; Skewes, H. R. An examination of some soils from tropical Australia. *Trans. Roy. Soc. S. Aust.* 65, 1941 (123-139).

(943)631.416.2—Hirschfeld, E. The phosphorus problem in western Queensland. *Queensland Agric. J.* 54, 1940 (196-207).

(943)632.51—White, C. T. Noxious weeds. *Queensland Agric. J.* 56, 1941 (332-336). Biol. Abs. 16 (988).

(943)633.3—Schofield, J. L. Introduced legumes in North Queensland. *Queensland Agric. J.* 56, 1941 (378-388). V, 3

(943)634.653-1.5—Prest, R. L. The avocado in Queensland. *Queensland Agric. J.* 56, 1941 (450-472).

(943)634.774-1.4—Vallance, L. G. ; Wood, H. L. The pineapple soils of the Nambour, Woombye and Palmwoods districts. *Queensland Agric. J.* 54, 1940 (86-101). IV, 1

# BIBLIOGRAPHY OF SOIL SCIENCE

- IV, 2 (943/634.774-1.4—Vallance, L. G. ; Wood, H. L. The pineapple soils of the Nambour, Woombye, and Palmwoods districts. III. Physical analyses and moisture relationships. IV. Chemical analyses. V. Pedogenesis. VI. Summary. *Queensland Agric. J.* 54, 1940 (172-195).
- (943/634.774-1.4—Vallance, L. G. The soils of the Nambour, Woombye and Palmwoods districts and their suitability for pineapple culture. *Queensland Agric. J.* 55, 1941 (92-107). C.A. 35 (4892).
- (943/634.774-1.5—Hancock, W. G. Pineapples in the Queensland tropics. *Queensland Agric. J.* 55, 1941 (374-381).
- (943/634.774-1.5—Lewcock, H. K. Pineapple culture in Queensland. *Queensland Agric. J.* 55, 1941 (273-287).
- (943/635.65-1.81—Summerville, W. A. T. Bean fertilizer investigations. *Queensland Agric. J.* 55, 1941 (288-290) ; 56, 1941 (374-377).
- (944/631.459 : 631.61—Agricultural Gazette of New South Wales. Soil erosion. Its control by systems of cropping. *Agric. Gaz. N.S.W.* 52, 1941 (506-516, 529).
- (944/631.459 : 631.61—Hardy, W. D. Soil erosion prevention and control on the Southern Tableland. *Agric. Gaz. N.S.W.* 53, 1942 (113-117).
- (944/631.473—Smith, R. ; Herriot, R. I. ; Johnston, E. J. The soil and land-use survey of the Wakool Irrigation District, New South Wales. *Aust. Coun. Sci. Indust. Res. Bull.* 162, 1943, pp. 59.
- VII, 2 (944/631.67—Thorpe, E. W. R. Water and soil problems in irrigation development on the Murrumbidgee irrigation areas. *Aust. Geog.* 4, 1942 (76-86). *Herb. Abs.* 13 (196).
- (944/631.874—Benton, R. J. ; Levitt, E. C. Green manuring in coastal districts. *Agric. Gaz. N.S.W.* 53, 1942 (87-88).
- VI, 2 (944/634.3-1.67—Benton, R. J. Citrus trees and their irrigation needs. *Agric. Gaz. N.S.W.* 53, 1942 (566-569) ; 54, 1943 (33-35).
- VII, 1 (944/634.3-2—[New South Wales] Irrigation Research Extension Committee. Report on citrus decline on the Murrumbidgee Irrigation Areas. *N.S.W. Irrig. Res. Ext. Cttee.* 1943, pp. 13.
- (945/631.473—Penman, F. ; Hubble, G. D. ; Taylor, J. K., et al. A soil survey of the Mildura Irrigation Settlement, Victoria. *Aust. Coun. Sci. Indust. Res. Bull.* 133, 1940, pp. 75.
- (945/631.473—Hubble, G. D. ; Crocker, R. L. A soil survey of the Red Cliffs Irrigation District, Victoria. *Aust. Coun. Sci. Indust. Res. Bull.* 137, 1941, pp. 83.
- (945/631.473—Butler, B. E. ; Baldwin, J. G. ; Penman, F., et al. Soil survey of part of County Moira, Victoria. *Aust. Coun. Sci. Indust. Res. Bull.* 152, 1942, pp. 48 C.A. 38 (445).
- (945/631.473—Goudie, A. G. A survey of soils and land utilization in the parishes of Koo-wee-rup and Koo-wee-rup East. *Proc. Roy. Soc. Victoria* 54, 1942 (83-130).
- (945/631.874—Gayford, G. W. Green manure crops. *J. Dept. Agric. Victoria* 40, 1942 (197-201).
- IV, 4 (945/633.11-1.81—Hackwell, A. B. ; McKeon, B. F. Wimmera wheat tests. Trials at Longerenong. *J. Dept. Agric. Victoria* 39, 1941 (1-8).

# FERTILIZERS AND GENERAL AGRONOMY

- (945)633.2.03-1.415.36—Morgan, A. Pasture improvement in alkali soils. Results in Kerang district. *J. Dept. Agric. Victoria* 40, 1942 (171-177). V, 5
- (945)633.2.03-1.67—Morgan, A. Irrigated pastures. Trials in the northern irrigation areas. *J. Dept. Agric. Victoria* 39, 1941 (15-16, 43-47).
- (945)633.2.03-1.81—Twentyman, R. L. Pasture investigations. *J. Dept. Agric. Victoria* 40, 1942 (109-118, 144-151).
- (945)633.491-1.81—Mattingley, G. H. Potato manurial trials. Results for 1939-40; 1940-41; 1941-42. *J. Dept. Agric. Victoria* 39, 1941 (105-109); 40, 1942 (75-85, 570-577, 606).
- (945)633.52-1.5—Williamson, J. A. Flax growing. *Agric. Gaz. N.S.W.* 51, 1940 (475-478, 489-490).
- ((945)633.52-1.5—McDonald, W. J. B. Flax production in Victoria. *J. Dept. Agric. Victoria* 40, 1942 (217-221).
- (945)633.71-1.4—Penman, F. Myrtleford tobacco experiment area. *J. Dept. Agric. Victoria* 39, 1941 (241-252). IV, 5
- (945)634.334-1.5—Rolfe, W. A.; Gayford, G. W. Lemon growing in southern Victoria. *J. Dept. Agric. Victoria* 41, 1943 (308-309).
- (945)634.63-1.5—Roberts, R. Olive culture. *J. Dept. Agric. Victoria* 40, 1942 (295-300).
- (945)634.8-1.5—Lyon, A. V.; Walters, D. W. Production of dried grapes in Murray Valley Irrigation Settlements. I. Viticulture. *Aust. Counc. Sci. Indust. Res. Bull.* 143, 1941, pp. 48. B.C.A.B. III, 1942 (164).
- (945)635.65-1.5—Cole, C. E.; Hyam, G. N.; Read, F. M. Growing field beans in Victoria. *J. Dept. Agric. Victoria* 40, 1942 (468-477).
- (946)631.4—Stephens, C. G. The soils of Tasmania. *Aust. Counc. Sci. Indust. Res. Bull.* 139, 1941, pp. 40.
- (946)631.459—Goldstone, C. L. The menace of erosion. *Tasm. J. Agric.* 13, 1942 (9-11). *Herb. Abs.* 12 (225).
- (946)631.615—Fleming, W. S. Development of swamp lands of north-west Tasmania. *Tasm. J. Agric.* 13, 1942 (59-61).
- (946)631.615—Fleming, W. S. Swamp lands. Development of Mowbray Swamp. *Tasm. J. Agric.* 14, 1943 (10-12).
- (946)633.31-1.5—Ward, F. E. Lucerne growing in Southern Tasmania. *Tasm. J. Agric.* 12, 1941 (45-48). *Herb. Abs.* 12 (10).
- (946)634.21-1.5—Thomas, P. H. Apricot culture in Tasmania. *Tasm. J. Agric.* 14, 1943 (4-9).
- (95)63—Green, E. C. The cultivation of Native food crops. *N. Guinea Agric. Gaz.* 7, 1941 (44-49, 225-233). *Hort. Abs.* 11 (140).
- (95)631.4—Hosking, J. S. Report on soil samples from Aiyura Agricultural Station, Upper Ramu, New-Guinea. *N. Guinea Agric. Gaz.* 5, No. 1, 1939 (74-75). C.A. 35 (551).
- (95)631.4—Hosking, J. S. Report on soil samples from New Guinea (New Ireland district; New Britain district). *N. Guinea Agric. Gaz.* 5, No. 3, 1939 (41-42, 50-51). C.A. 35 (554).
- (95)631.851—Hutchinson, R. C. Phosphate deposits in New Guinea. *N. Guinea Agric. Gaz.* 7, 1941 (239-248).



# BIBLIOGRAPHY OF SOIL SCIENCE

- (95)633.912-1.5—Dwyer, R. E. P. Rubber production in New Guinea and Papua. *N. Guinea Agric. Gaz.* 7, 1941 (169-198, 249-279). *Biol. Abs.* 16 (481).
- (961)63—Jack, H. W. Nutrition in relation to agriculture. *Fiji Agric. J.* 12, 1941 (105-111).
- (961)63—Parham, B. E. V. Some useful plants of the Fiji Islands. Part I. *Fiji Agric. J.* 13, 1942 (39-49).
- (961)631.47—Coulter, J. W. Land utilization by Fijians and East Indians in Fiji. *Proc. Sixth Pacific Sci. Cong.* 4, 1940 (29-37). *Herb. Abs.* 12 (118).
- (961)633.18-1.5—Parham, B. E.; Ramnath, B. The production of rice in the Southern Agricultural Division in 1941. *Fiji Agric. J.* 13, 1942 (11-12).
- (961)633.18-1.67—Parham, W. L. Water-control methods for small holders. *Fiji Agric. J.* 13, 1942 (20-22).
- IV, 5 (961)633.2.03-1.5—Fiji Agricultural Journal. Pasture experiment, Tailevu. *Fiji Agric. J.* 12, 1941 (53-55).
- (961)633.2.03-1.5—Parham, W. L. Observations on pasture improvement. *Fiji Agric. J.* 13, 1942 (36-38).
- (961)633.494-1.5—Parham, W. L. Jerusalem artichoke (*Helianthus tuberosus*). *Fiji Agric. J.* 10, No. 2, 1939 (34). *Biol. Abs.* 16 (996).
- VII, 4 (961)633.61-1.4—Blackie, W. J. Soil investigations—Part 3. The sugar-cane soils of Rewa. *Fiji Agric. J.* 15, 1944 (4-7, 21).
- (961)634.3-1.4—Blackie, W. J.; Johns, R. Observations on citrus introduction at Nasinu. *Fiji Agric. J.* 11, 1940 (70-80).
- (969)631.4—Hance, F. E. Acid soils of the Hawaiian Islands. *Hawaii. Sug. Plant. Assoc. Rept.* 61, 1941 (98-105). *B.C.A.B. III*, 1942 (249).
- (969)631.4—Ayles, A. S. Soils of high-rainfall areas in the Hawaiian Islands. *Hawaii Agric. Expt. Sta. Tech. Bull.* 1, 1943, pp. 41.
- (969)631.4 : 581.5—Ripperton, J. C.; Hosaka, E. Y. Vegetation zones of Hawaii. *Hawaii Agric. Expt. Sta. Bull.* 89, 1942, pp. 60. *E.S.R.* 89 (437).
- (969)631.459—Egler, F. E. Unrecognized arid Hawaiian soil erosion. *Science* 94, 1941 (513-514).
- (969)631.47—Coulter, J. W. Agricultural land-use planning in the Territory of Hawaii. *Hawaii Univ. Agric. Ext. Serv. Ext. Bull.* 36, 1940, pp. 124. *Herb. Abs.* 12 (223).
- (969)631.483—Hough, G. J.; Gile, P. L.; Foster, Z. C. Rock weathering and soil profile development in the Hawaiian Islands. *U.S.D.A. Tech. Bull.* 752, 1941, pp. 44. *E.S.R.* 85 (14).
- (969)633.34-1.5—Lennox, C. G. Edible soybean—a food crop for Hawaii. *Hawaii. Plant. Rec.* 46, 1942 (139-158).
- (969)633.61-2—Carpenter, C. W. A review of sugar cane diseases in Hawaii. *Rept. Hawaii. Sug. Tech. Second Ann. Meetg.* 1939 (33-37). *F.A.S.* 35, 10 (33).
- IV, 4 (984)631.4—Acock, A. M. Vegetation of a calcareous inner fjord region in Spitsbergen. *J. Ecol.* 28, 1940 (81-106). *C.A.* 34 (8132).

# FERTILIZERS AND GENERAL AGRONOMY

- (984)631.43—Romanovsky, V. The determination of physical properties of samples of mud from the polygonal soils of Spitsbergen. *C.R.* 212, 1941 (359-360). [F.] V, 3
- (984)631.48—Høeg, O. A. Crusts of gypsum on the soil of Klaas Billen Bay, Spitsbergen. *Kgl. Norske Vidensk. Selsk. Forh.* (1939) 12, 1940 (111-114). C.A. 35 (1918). [E.] IV, 4
- (988)63—Sigurdsson, S. Agriculture in Greenland. *Tidsskr. Landekon.* 1938 (537-584, 617-638). A.B.A. 9 (197).
- (99)631.461—Darling, C. A. Some bacteria of the Antarctic. *J. Bact.* 40, 1940 (461-462).
- (99)631.461—Darling, C. A.; Siple, P. A. Bacteria of Antarctica. *J. Bact.* 42, 1941 (83-98).

## LIST OF ABBREVIATIONS OF JOURNALS AND PERIODICALS

[The abbreviation is followed by the full title of the journal,  
and place of publication (where known).]

- A. B. A.** Animal Breeding Abstracts. Edinburgh.
- Abs. Proc. Geol. Soc. London.** Abstracts of the Proceedings of the Geological Society of London. London.
- Acco Press.** Houston, Tex.
- Acta Agralia Fenn.** Acta Agralia Fennica (Suomen Maataloustieteellisen Seuran Julkaisuja). Helsinki.
- Acta Chem. Fenn.** Acta Chemica Fennica (Suomen Kemistilehti). Helsinki.
- Agric. Colon.** Agricultura Coloniale. Florence.
- Agric. Com. Indust. Rev. Paraguay.** Agricultura, Comercio e Industria. Revista. Asunción, Paraguay.
- Agric. Elev. Congo Belge.** Agriculture et Elevage au Congo Belge. Brussels.
- Agric. Engng.** Agricultural Engineering. Banton Harbor, Mich.
- Agric. Gaz. N.S.W.** Agricultural Gazette of New South Wales. Sydney.
- Agric. Hist.** Agricultural History. Washington, D.C.
- Agric. in Americas.** Agriculture in the Americas. Washington, D.C.
- Agric. Meteor. Sect. Govt. Greece.** Agricultural Meteorological Section of the Greek Government. Athens.
- Agric. News Let.** Agricultural News Letter. Wilmington, Del.
- Agric. Prog.** Agricultural Progress (The Journal of the Agricultural Education Association). Newport, Shropshire, England.
- Agric. Venezol.** Agricultor Venezolano. Caracas.
- Agricultura Madrid.** Agricultura. Revista Agropecuaria. Madrid.
- Agrogeol. Julk.** Maatalanskoe-laitoksen Maatutkimusosasto Agrogeologia Julkaisuja (Soil Division of the Central Agricultural Experiment Station of Finland). Helsinki.
- Agron. Lusit.** Agronomia Lusitana. Estação Agronómica Nacional. Belém, Portugal.
- Agronomía B. Aires.** Agronomía. Buenos Aires.
- Agronomia Cuba.** Agronomia. Havana, Cuba.
- Agronomoomia Tartu.** Agronomoomia. Estonian Journal of Agricultural Science. Tartu, Esthonia.
- Ak-Kavak Cent. Agrotech. Sta. Cotton Agrotech. and Agrochem. Problems.** Ak-Kavak Central Agrotechnical Station. Cotton Research Institute (SoiuzNIKhl). Problems of Cotton Agrotechnique (Ak-Kavakskiaia Tsentral'naia Agrotechnicheskaia Stantsia. Vsesoiuzny Nauchno-Issledovatel'sky Institut Khlopkovodstva (Soiuz-NIKhl), Tashkent. Voprosy Agrotekhniki i Agrokhimii Khlopchatnika i Kormovyykh Kultur). Tashkent.

## ABBREVIATIONS OF JOURNALS AND PERIODICALS

- Ala. Agric. Expt. Sta. Bull.** Alabama Agricultural Experiment Station. Bulletin. Auburn, Ala.
- Ala. Agric. Expt. Sta. Circ.** Alabama Agricultural Experiment Station. Circular. Auburn, Ala.
- Alaska Univ. Ext. Circ.** University of Alaska. Agricultural Experiment Station. Extension Service. Circular. Fairbanks.
- Alberta Res. Council. Geol. Rept.** Scientific and Industrial Research Council of Alberta. Geological Survey Division, Report. Edmonton.
- Alberta Univ. Coll. Agric. Bull.** Alberta University College of Agriculture. Bulletin. Edmonton.
- Allahabad Farmer.** Allahabad.
- Allg. Forst- u. Jagdztg.** Allgemeine Forst- und Jagdzeitung. Frankfurt a.M.
- Alman. Min. Agric. Argentina.** Almanaque del Ministerio de Agricultura de la Nacion. Buenos Aires.
- Amer. Assoc. Adv. Sci. Pub.** The American Association for the Advancement of Science.
- Amer. Cranberry Grow. Assoc. Proc.** American Cranberry Growers' Association. Proceedings of the Annual Meeting. Toms River, N.J.
- Amer. Fert.** The American Fertilizer. Philadelphia, Pa.
- Amer. Gas Assoc. Mo.** American Gas Association Monthly. New York.
- Amer. Inst. Min. Engrs. Tech. Pub.** American Institute of Mining and Metallurgical Engineers. Technical Publication. New York.
- Amer. J. Bot.** American Journal of Botany. Lancaster, Pa.
- Amer. J. Phys.** American Journal of Physics. New York.
- Amer. J. Pub. Health.** American Journal of Public Health and the Nation's Health. New York.
- Amer. J. Roentgenol.** The American Journal of Roentgenology and Radium Therapy. Detroit and New York.
- Amer. J. Sci.** American Journal of Science. New Haven, Conn.
- Amer. J. Trop. Med.** The American Journal of Tropical Medicine. Baltimore, Md.
- Amer. Midl. Nat.** American Midland Naturalist. Notre Dame, Ind.
- Amer. Miner.** The American Mineralogist. Menasha, Wis.
- Amer. Potash Inst.** American Potash Institute. Washington.
- Amer. Potato J.** American Potato Journal. Somerville, N.J.
- Amer. Rose Ann.** The American Rose Annual, The Yearbook of Rose Progress. Harrisburg, Pa.
- Amer. Soc. Sug. Beet Tech.** American Society Sugar Beet Technologists. Longmont, Colo.
- An. Acad. Brasil. Cienc.** Anais da Academia Brasileira de Ciencias. (Formerly Annaes da Academia Brasileira de Sciencias.) Rio de Janeiro.
- An. Acad. Rom.** Analele Academiei Române. Memorie Sect. Stintifice. Bukarest.
- An. Asoc. Quím. Argentina.** Anales de la Asociación Química Argentina. Buenos Aires.
- An. Assoc. Quím. Brasil.** Anais da Associação Química do Brasil. Rio de Janeiro.
- An. Fis. Quím.** Anales des Física y Química. Madrid.
- An. Inst. Biol. Univ. Mex.** Anales del Instituto de Biología. Universidad de Mexico. Mexico, D. F.

# ABBREVIATIONS OF JOURNALS AND PERIODICALS

- An. Inst. Cerc. Agron. Român.** Analele Institutului de Cercetări Agronomice al României. Bukarest.
- An. Inst. Edafol.** Anales del Instituto de Edafología, Ecología y Fisiología Vegetal. Madrid.
- An. Soc. Cient. Argentina.** Anales de la Sociedad Científica Argentina. Buenos Aires.
- Analyst.** The Analyst. London.
- Angew. Bot.** Angewandte Botanik. Berlin.
- Angew. Chem.** Angewandte Chemie. (Now Die Chemie.) Berlin.
- Ann. Agron.** Annales Agronomiques. Paris.
- Ann. Appl. Biol.** Annals of Applied Biology. London.
- Ann. Bot.** Annals of Botany. London.
- Ann. Chim. Anal.** Annales de Chimie Analytique et de Chimie Appliquée et Revue de Chimie Analytique Réunies. Paris.
- Ann. Chim. Appl.** Annali di Chimica Applicata. Rome.
- Ann. Éc. Agric. Montpellier.** Annales de l'École Nationale d'Agriculture de Montpellier. Montpellier.
- Ann. Eugenics.** Annals of Eugenics. Cambridge.
- Ann. Fac. Agrar. Univ. Pisa.** Annali della Facoltà di Agraria della R. Università di Pisa. Pisa.
- Ann. Ferment.** Annales des Fermentations. Service des Fermentations de l'Institut Pasteur de Paris. Paris.
- Ann. Gembloux.** Annales de Gembloux. Gembloux, Belgium.
- Ann. Inst. Agric. Algérie.** Annales de l'Institut Agricole et des Services de Recherches et d'Experimentation Agricoles de l'Algérie. Algiers.
- Ann. Inst. Pasteur.** Annales de l'Institut Pasteur. Paris.
- Ann. Jard. Bot. Buitenzorg.** Annales du Jardin Botanique de Buitenzorg. Buitenzorg.
- Ann. Missouri Bot. Gard.** Annals of the Missouri Botanical Garden. St. Louis, Mo.
- Ann. Rev. Biochem.** Annual Review of Biochemistry. Stanford University, California.
- Ann. Sta. Sper. Agrar. Modena.** Annali della R. Stazione Sperimentale Agraria di Modena. Modena.
- Ann. Univ. Sofia Fac. Agron. Sylvicult.** Annuaire de l'Université de Sofia. Faculté d'Agronomie et de Sylviculture. Sofia.
- Antonie van Leeuwenhoek.** Journal of Microbiology and Serology. Amsterdam.
- Arb. Beitebr. Norge.** Årbok for Beitebruk i Norge. Oslo.
- Arch. Biochem.** Archives of Biochemistry. New York.
- Arch. Fitotéc. Uruguay.** Archivo Fitotécnico del Uruguay. Montevideo.
- Arch. Inst. Pasteur Afr. N.** Archives des Instituts Pasteur de l'Afrique du Nord. Tunis.
- Arch. Inst. Pesquisas Agron.** (Biol. Abs.)
- Arch. Mikrobiol.** Archiv für Mikrobiologie. Berlin.
- Arch. Rubbercult.** Archief voor de Rubbercultuur in Nederlandsch-Indië. Batavia.
- Arch. Suikerindust.** Archief voor de Suikerindustrie in Nederland en Nederlandsch-Indië. Soerabaia, Java.
- Arch. Theecult.** Archief voor de Theecultuur in Nederlandsch-Indië. Batavia.
- Ariz. Agric. Expt. Sta. Bull.** Arizona, Agricultural Experiment Station. Bulletin. Tucson, Ariz.

## ABBREVIATIONS OF JOURNALS AND PERIODICALS

- Ariz. Agric. Expt. Sta. Mimeo. Rept.** Arizona, Agricultural Experiment Station. Mimeographed Report. Tucson, Ariz.
- Ariz. Agric. Expt. Sta. Tech. Bull.** Arizona, Agricultural Experiment Station. Technical Bulletin. Tucson, Ariz.
- Ark. Agric. Expt. Sta. Bull.** Arkansas Agricultural Experiment Station. Bulletin. Fayetteville, Ark.
- Arkh. Min. Pol'opriv.** Arkhiv Ministarstva Pol'oprivrede (Journal of the Ministry of Agriculture). Belgrade.
- Arq. Hig. Saude Pub.** Arquivos de Higiene e Saude Pública. São Paulo.
- Assoc. Hawaii. Sug. Tech. Rept.** Association of Hawaiian Sugar Technologists. Report. Honolulu.
- Assoc. Sci. Tech. Soc. S. Africa.** The Associated Scientific and Technical Societies of South Africa. Johannesburg.
- ASTM Bulletin.** ASTM Bulletin (American Society for Testing Materials). Philadelphia, Pa.
- Atti Accad. Italia R.C. Cl. Sci. Fis.** Atti della Reale Accademia d'Italia. Rendiconti della Classe di Scienze Fisiche, Matematiche e Naturali. Rome.
- Aust. Chem. Inst. J. Proc.** The Australian Chemical Institute. Journal and Proceedings. Melbourne.
- Aust. Counc. Sci. Indust. Res. Bull.** Commonwealth of Australia. Council for Scientific and Industrial Research. Bulletin. Melbourne.
- Aust. Counc. Sci. Indust. Res. Pamph.** Commonwealth of Australia, Council for Scientific and Industrial Research. Pamphlet. Melbourne.
- Aust. Forestry.** Australian Forestry. Perth, W.A.
- Aust. Geog.** Australian Geographer. Sydney.
- Aust. J. Counc. Sci. Indust. Res.** Commonwealth of Australia. Journal of the Council for Scientific and Industrial Research. Melbourne.
- Aust. J. Sci.** The Australian Journal of Science. Sydney.
- Azovo-Chernomorsk. S.-Kh. Inst. Sborn. Nauch.-Issled. Rab.** Azovo-Chernomorsk Sel'sko-Khoziastvenny Institut. Sbornik Nauchno-Issledovatel'skikh Rabot. (Azov-Black Sea Agricultural Institute. Collection of Scientific Studies). Novocherkassk.
- B.C.A.** British Chemical and Physiological Abstracts. London.
- B.C.A.A.** British Chemical and Physiological Abstracts [A., I. General, Physical, and Inorganic Chemistry; A., II. Organic Chemistry; A., III. Physiology and Biochemistry]. London.
- B.C.A.B.** British Chemical and Physiological Abstracts [B., I. Chemical Engineering and Industrial Inorganic Chemistry; B., II. Industrial Organic Chemistry; B., III. Agriculture, Foods, Sanitation, etc.]. London.
- Bact. Rev.** Bacteriological Reviews. Baltimore, Md.
- Bad. Obst- u. Gartenb.** Badischer Obst- und Gartenbau. Karlsruhe.
- Banana Bull. Sydney.** Banana Bulletin. Sydney.
- Barbados Agric. J.** Barbados Department of Science and Agriculture. Agricultural Journal. Bridgetown.
- Bauingenieur.** Berlin.
- Bautech.** Bautechnik. Berlin

# ABBREVIATIONS OF JOURNALS AND PERIODICALS

- Beih. Bot. Cbl.** Beihefte zum Botanischen Centralblatt, Dresden.
- Ber. Deut. Keram. Ges.** Berichte der Deutschen Keramischen Gesellschaft. Berlin.
- Ber. Geobot. Inst. Rübel.** Bericht des Geobotanischen Instituts Rübel. Zurich.
- Ber. Ōhara Inst.** Berichte des Ōhara Instituts für Landwirtschaftliche Forschungen. Kurashiki, Japan.
- Ber. Schweiz. Bot. Ges.** Bericht der Schweizerischen Botanischen Gesellschaft. Bern.
- Ber. ü. Landw. Sonderh.** Berichte über Landwirtschaft, Sonderheft. Berlin.
- Bergcultures.** De Bergcultures. Batavia.
- Better Crops with Plant Food.** Better Crops with Plant Food. American Potash Institute. Washington, D.C.
- Bib. Met. Lit.** Bibliography of Meteorological Literature. London.
- Bied. Zbl.** Biedemann's Zentralblatt für Agriculturchemie und Rationellen Landwirtschaftsbetrieb. *Abt. A.* Allgemeiner und Referierender Teil. *Abt. B.* Tierernährung. Leipzig.
- Bièr. Boiss.** Bières et Boissons. (C.A.)
- Biochem. J.** The Biochemical Journal. London.
- Biochem. Ztschr.** Biochemische Zeitschrift. Berlin.
- Biokhim. Kul'tur. Rast.** Biokhimiia Kul'turnykh Rasteniy (Biochemistry of Cultivated Plants). Leningrad.
- Bioklim. Beibl. Met. Ztschr.** Bioklimatische Beiblätter der Meteorologischen Zeitschrift. Braunschweig.
- Biol. Abs.** Biological Abstracts. Baltimore, Md.
- Biol. Rev.** Biological Reviews of the Cambridge Philosophical Society. London.
- Black Rock Forest Pap.** Black Rock Forest Papers. Cornwall-on-the-Hudson, N.Y.
- Bodenk. Pflernähr.** Bodenkunde und Pflanzenernährung. Berlin.
- Bol. Agric. S. Paulo.** Boletim de Agricultura (State of S. Paulo Dept. of Agriculture). S. Paulo.
- Bol. Comp. Admin. Guano.** Boletín de la Compania Administradora del Guano. Lima.
- Bol. Inst. Expt. Agric.** Boletim do Instituto de Experimentação Agrícola. Rio de Janeiro.
- Bol. Inst. Investig. Agron. Madrid.** Boletín del Instituto Nacional de Investigaciones Agronómicas. Madrid.
- Bol. Min. Agric. Rio de J.** Boletim do Ministerio da Agricultura, Industria e Commercio. Rio de Janeiro.
- Bol. Soc. Brasil. Agron.** Boletim da Sociedade Brasileira de Agronomia. Rio de Janeiro.
- Bol. Sup. Serv. Café.** Boletim da Superintendência dos Serviços do Café. (Formerly Revista do Instituto do Café) São Paulo.
- Boll. Orto Bot. Napoli.** Bollettino dell'Orto Botanico. Naples.
- Boll. Sta. Indust. Pelli.** Bollettino della Regia Stazione per le Industrie delle Pelli e Materie Concianti. Turin and Naples.
- Boll. Tec. Ist. Sper. Tab. Scafati.** Bollettino Tecnico del R. Istituto Sperimentale per le Coltivazioni dei Tabacchi "Leonardo Angeloni". Scafati, Italy.
- Bombay Dept. Agric. Bull.** Bombay Department of Agriculture. Bulletin. Poona.

## ABBREVIATIONS OF JOURNALS AND PERIODICALS

- Bonne Terre.** La Bonne Terre. École Supérieure d'Agriculture, Ste-Anne de la Poca-tière, Kamouraska, Quebec.
- Bot. Gaz.** Botanical Gazette. Chicago.
- Bot. Rev.** Botanical Review. Lancaster, Pa.
- Bot. Zh. S.S.S.R.** Botanichesky Zhurnal S.S.S.R. (Botanical Journal of the U.S.S.R.). Leningrad.
- Boyce Thompson Inst. Contr.** Boyce Thompson Institute for Plant Research. Contributions. Yonkers, N.Y.
- Bragantia.** Boletim Técnico do Instituto Agrônomo do Estado de São Paulo. Campi-nas, Brazil.
- Brit. Elect. Res. Ass. Tech. Rept.** British Electrical and Allied Industries Research Association. Technical Re-port. London.
- Brit. Guiana Dept. Agric. Sug.** Bull. British Guiana. Depart-ment of Agriculture. Sugar Bulletin. Georgetown.
- Bull. Acad. Sci. (U.S.S.R.) (Cl. Sci. Math.) Sér. Biol. (or Chim.) (or Géol.).** Bule-tin de l'Académie des Sciences de l'Union des Républiques Soviétiques Socialistes. Classe des Sciences Mathématiques et Naturelles. Série Biologique (or Série Chimique), (or Série Géologique). Izvestia Aka-demii Nauk, Moscow.
- Bull. Agric. Congo Belge.** Bulletin Agricole du Congo Belge. Brussels.
- Bull. Agric. Mech. Coll. Texas.** Bulletin of the Agri-cultural and Mechanical Col-lege of Texas. (Includes Texas Engineering Experi-ment Station Bulletin.) Col-lege Station, Tex.
- Bull. Amer. Ceram. Soc.** Bulletin of the American Ceramic Society. Easton, Pa.
- Bull. Amer. Met. Soc.** Bulletin of the American Meteorological Society. Milton, Mass.
- Bull. Assoc. Chim. Sucr.** Bulletin de l'Association des Chimistes de Sucrierie, de Distillerie et des Industries Agricoles de France et des Colonies. Paris.
- Bull. Chrysanth. Soc. Amer.** Bulletin of the Chrysanthemum Society of America. Boston.
- Bull. Colon. Inst. Amsterdam.** Bulletin of the Colonial Insti-tute of Amsterdam. Amster-dam.
- Bull. Ecol. Soc. Amer.** Bule-tin of the Ecological Society of America. Urbana, Ill.
- Bull. Geol. Soc. Amer.** Bule-tin of the Geological Society of America. New York.
- Bull. Imp. Inst.** Bulletin of the Imperial Institute. London.
- Bull. Min. Agric. B.C.** Bulletin of the Ministry of Agriculture, Victoria, British Columbia.
- Bull. Roy. Hung. Hort. Coll.** Bulletin of the Royal Hunga-rian Horticultural College (M. Kir. Kertészeti Tanin-tézet Közleményei). Budapest.
- Bull. Sch. Agric. Taihoku Univ.** Bulletin of the School of Agriculture and Forestry Taihoku Imperial University. Taihoku.
- Bull. Soc. Chim. Fr.** Bulletin de la Société Chimique de France. Paris.
- Bull. Tech. Mus. Sydney.** Bulletin of the Technological Museum. Sydney.
- Bull. Thailand Res. Soc.** Bulletin of the Thailand Re-search Society. Bangkok.
- Bull. Torrey Bot. Cl.** Bulletin of the Torrey Botanical Club. New York.
- Bull. Un. Agric. Égypte.** Bulletin de l'Union des Agri-culteurs d'Égypte. Cairo.



# ABBREVIATIONS OF JOURNALS AND PERIODICALS

- Bull. Wagner Inst. Sci. Philad.**  
Bulletin of the Wagner Free  
Institute of Science of Phila-  
delphia.
- C.A.** Chemical Abstracts.  
Easton, Pa.
- C.R.** Comptes Rendus Hebdo-  
madaires des Séances de  
l'Académie des Sciences.  
Paris.
- C.R. Acad. Agric.** Comptes  
Rendus Hebdomadaires des  
Séances de l'Académie d'  
Agriculture de France. Paris.
- C.R. Acad. Sci. (U.S.S.R.).**  
Comptes Rendus de l'Académie  
des Sciences de l'U.S.S.R.  
(Doklady Akademii Nauk  
S.S.S.R.) Leningrad.
- C.R. Inst. Int. Rech. Better.**  
Compte Rendu de l'Assem-  
blée de l'Institut Interna-  
tional de Recherches Better-  
avières. Brussels.
- C.R. Lab. Carlsberg Sér.  
Chim. (or Physiol.)** Compte  
Rendu des Travaux du Labo-  
ratoire de Carlsberg. Série  
Chimique (or Série Physio-  
logique). Copenhagen.
- C.R. Soc. Biol. Paris.** Compte  
Rendu Hebdomadaire des  
Séances et Mémoires de la  
Société de Biologie. Paris.
- C.R. Soc. Géol. Fr.** Compte  
Rendu Sommaire des Séances  
de la Société Géologique de  
France. Paris.
- Calif. Agric. Expt. Sta. Bull.**  
California Agricultural Ex-  
periment Station. Bulletin.  
Berkeley.
- Calif. Agric. Ext. Serv. Circ.**  
California Agricultural Ex-  
tension Service. Circular.  
Berkeley.
- Calif. Avocado Assoc. Yrbk.**  
California Avocado Associa-  
tion Year Book. (Now Cali-  
fornia Avocado Society Year-  
book.) Los Angeles.
- Calif. Avocado Soc. Yrbk.**  
California Avocado Societ  
Yearbook. Los Angeles.
- Calif. Citrog.** California Citro-  
graph. Los Angeles.
- Calif. Cultiv.** California Culti-  
vator. Los Angeles.
- Campesino Santiago de Chile.**  
El Campesino. Santiago de  
Chile.
- Canad. Ent.** Canadian Ento-  
mologist. Guelph, Ont.
- Canad. Geog. J.** Canadian  
Geographical Journal. Ottawa.
- Canad. J. Res.** Canadian  
Journal of Research. Ottawa.
- Canad. Pub. Health J.** Cana-  
dian Public Health Journal.  
Toronto.
- Canad. Soc. Tech. Agric. Rev.**  
Canadian Society of Technical  
Agriculturists. Review.  
Ottawa.
- Canada Agric. Supplies Bd.  
Spec. Pamph.** Dominion of  
Canada. Agricultural Supplies  
Board. Special Pamphlet.  
Ottawa.
- Canada Dept. Agric. Farm.  
Bull.** Dominion of Canada,  
Department of Agriculture.  
Farmers' Bulletin. Ottawa.
- Canada Dept. Agric. Pub.**  
Dominion of Canada. Depart-  
ment of Agriculture. Publica-  
tion. Ottawa.
- Canada Dept. Agric. Spec.  
Pamph.** Dominion of  
Canada. Department of Agri-  
culture. Special Pamphlet.  
Ottawa.
- Canada Dept. Agric. Tech.  
Bull.** Dominion of Canada,  
Department of Agriculture.  
Technical Bulletin. Ottawa.
- Canada Natl. Res. Counc.**  
National Research Council of  
Canada. Ottawa.
- Canada Natl. Res. Counc.  
Pub.** National Research  
Council of Canada. Publi-  
cation. Ottawa.

# ABBREVIATIONS OF JOURNALS AND PERIODICALS

- Cane Grow. Quart. Bull.** The Cane Growers' Quarterly Bulletin. Brisbane, Queensland.
- Canner.** The Canner. Chicago.
- Canning Age.** New York.
- Carib. Forest.** Caribbean Forester. Rio Piedras, P.R.
- Carnation Yrbk.** The Carnation Year Book. London.
- Cawthron Inst. Past. Res. Pub.** Cawthron Institute Soil and Pasture Research Publication. Nelson, N.Z.
- Cbl. Zuckerindust.** Centralblatt für die Zuckerindustrie. Magdeburg, Germany.
- Cent. St. For. Expt. Sta. Tech. Note.** Central States Forest Experiment Station. Technical Note. Columbus, Ohio.
- Ceres.** Minas Geraes, Brazil.
- Chem.-Anal.** The Chemist-Analyst. Phillipsburg, N.J.
- Chem. Indust.** Chemistry and Industry. London.
- Chem. Listy.** Chemické Listy pro Vědu a Průmysl. Prague.
- Chem. Obzor.** Chemický Obzor. Prague.
- Chem. Trade J.** The Chemical Trade Journal and Chemical Engineer. London.
- Chem. Weekbl.** Chemisch Weekblad. Amsterdam.
- Chem.-Ztg.** Chemiker-Zeitung. Cöthen, Germany.
- Cheshunt Expt. Res. Sta. Circ.** Cheshunt Experimental and Research Station. Circular. Cheshunt, England.
- Chim. Chron.** Chimika Chronika (Annales Chimiques). Athens.
- Chim. Indust.** Chimie et Industrie. Paris.
- Chin. J. Sci. Agric.** The Chinese Journal of Scientific Agriculture. Chungking.
- China Natl. Wuhan Univ. Res. Bull. Biol.** Research Department of Faculty of Science. National Wuhan University. Research Bulletin in Biology. Kiating, Szechuen, China.
- Chron. Bot.** Chronica Botanica. Waltham, Mass.
- Cienc. Téc.** Ciencia y Técnica (Puerto Rico). (C.A.)
- Citrus Grow.** Citrus Grower. Uitenhage, S. Africa.
- Citrus Grow. Florida.** The Citrus Grower. Orlando, Fla.
- Citrus Indust.** The Citrus Industry. Tampa, Fla.
- Citrus Leaves.** Redlands, Calif.
- Civil. Conserv. Corps Forestry Pub.** Civilian Conservation Corps. Forestry Publication of the Federal Security Agency. Washington, D.C.
- Coffee Bd. Kenya Mo. Bull.** The Coffee Board of Kenya. Monthly Bulletin. Nairobi.
- Colo. Agric. Expt. Sta. Bull.** Colorado Agricultural Experiment Station. Bulletin. Fort Collins, Colo.
- Colo. Agric. Expt. Sta. Tech. Bull.** Colorado Agricultural Experiment Station. Technical Bulletin. Fort Collins, Colo.
- Colo. Farm Bull.** Colorado Farm Bulletin. Quarterly Publication of Colorado Experiment Station. Fort Collins, Colo.
- Colo. St. Coll. Lib. Bull.** Colorado State College Library Bulletin. Fort Collins, Colo.
- Columbia Univ. Dept. Civil Engng. Bull.** Columbia University. Department of Civil Engineering Bulletin. New York.
- Comm. Fert.** Commercial Fertilizer. Atlanta, Ga.
- Comm. Fert. Yrbk.** Commercial Fertilizer Yearbook. Atlanta, Ga.
- Commun. Inst. Forest. Fenn.** Communicationes Instituti Forestalis Fenniae (Metsätieteellisen Tutkimuslaitoksen Julkaisuja). Helsinki.

# ABBREVIATIONS OF JOURNALS AND PERIODICALS

- Cong. Int. Tech. Chim. Indust. Agric.** Congrès International Technique et Chimique des Industries Agricoles.
- Conn. Agric. Expt. Sta. Bull.** Connecticut Agricultural Experiment Station. Bulletin. New Haven, Conn.
- Conn. Agric. Expt. Sta. Circ.** Connecticut Agricultural Experiment Station. Circular. New Haven, Conn.
- Conn. Veg. Grow. Assoc. Proc.** Connecticut Vegetable Growers' Association. Proceedings of the Annual Meeting. Middletown, Conn.
- Contr. Biol. Lab. Sci. Soc. China.** Contributions from the Biological Laboratory of the Science Society of China. Nanking.
- Cornell Agric. Expt. Sta. Bull.** Cornell University. Agricultural Experiment Station. Bulletin. Ithaca, N.Y.
- Cornell Agric. Expt. Sta. Mem.** Cornell University. Agricultural Experiment Station. Memoirs. Ithaca, N.Y.
- Cornell Ext. Bull.** New York State College of Agriculture at Cornell University. Cornell Extension Bulletin. Ithaca, N.Y.
- Cotton.** Atlanta, Ga.
- Country Life.** London.
- Cranberries.** Wareham, Mass.
- Crown Colonist.** The Crown Colonist. London.
- Curr. Sci.** Current Science. Bangalore.
- D.S.I.R. Geol. Surv. Gt. Britain Wartime Pamph.** Department of Scientific and Industrial Research. Geological Survey of Great Britain. Wartime Pamphlet. London.
- Date Grow. Inst. Ann. Rept.** Date Growers Institute. Annual Report. Coachella, Calif.
- Del. Agric. Expt. Sta. Bull.** Delaware Agricultural Experiment Station. Bulletin. Newark, Del.
- Deut. Forsch. Kol. Ausl.** Deutsche Forscherarbeit in Kolonie und Ausland. Berlin.
- Deut. Forstw.** Deutsche Forstwirtschaft. Berlin.
- Deut. LandesKztg.** Deutsche Landeskultur-Zeitung. Berlin.
- Deut. Landw. Pr.** Deutsche Landwirtschaftliche Presse. Berlin.
- Deut. Obstb.** Deutscher Obstbau. Frankfurt-a.-d.-Oder.
- Deut. Zuckerindust.** Die Deutsche Zuckerindustrie. Berlin.
- Die Chemie.** (Formerly *Angewandte Chemie*.) Berlin.
- Discovery.** London.
- Dokl. Akad. S.-Kh. Nauk.** Doklady Vsesoiuznoi Akademii Selsko-Khoziastvennykh Nauk imeni V.I. Lenina (Comptes Rendus de l'Académie des Sciences Agricoles de V. I. Lenin). Moscow.
- Dokuchaev Inst. Soils U.S.S.R.** Dokuchaev Soil Institute. Soils of the U.S.S.R. (Pochvennyi Institut imeni Dokuchaeva. Pochvy S.S.S.R.). Leningrad.
- Duke Univ. Sch. Forestry Bull.** Duke University. School of Forestry Bulletin. Durham, N.C.
- Düngermarkt.** Der Düngemarkt. (Formerly *Kunst-dünger und Leim*.) Berlin.
- E. Afric. Agric. J.** East African Agricultural Journal. Nairobi.
- E. Fruit Grow.** The Eastern Fruit Grower. Charles Town, W. Va.

# ABBREVIATIONS OF JOURNALS AND PERIODICALS

- E. Malling Res. Sta. Ann. Rept.** East Malling Research Station. Annual Report. Maidstone, Kent.
- E.S.R.** Experiment Station Record. Washington, D.C.
- Ecol. Monog.** Ecological Monographs. Durham, N.C.
- Ecology.** Brooklyn, N.Y.
- Econ. Geog.** Economic Geography. Worcester, Mass.
- Econ. Proc. Roy. Dublin Soc.** Economic Proceedings of the Royal Dublin Society. Dublin.
- Econ. Weekbl.** Economische Weekblad voor Nederlandsch-Indië. Batavia.
- Eire J. Dept. Agric.** Journal of the Department of Agriculture. Eire. Dublin.
- Emp. Cott. Grow. Rev.** The Empire Cotton Growing Review. London.
- Emp. Forestry J.** Empire Forestry Journal. London.
- Emp. J. Expt. Agric.** Empire Journal of Experimental Agriculture. London.
- Endeavour.** London.
- Engng. News-Rec.** Engineering News-Record. New York.
- Erdész. Kisérlet.** Erdészeti Kísérletek (Forest Researches). Sopron, Hungary.
- Erdész. Lapok.** Erdészeti Lapok (Forestry Papers). Budapest.
- Ernähr. Pfl.** Die Ernährung der Pflanze. Wissenschaftliche Abteilung des Deutschen Kalisyndikats. Berlin.
- Ernährung.** Die Ernährung. Zeitschrift für das Gesamte Ernährungswesen in Forschung, Lehre und Praxis. Leipzig.
- Estud. Geog.** Estudios Geográficos. Madrid.
- Expt. Botan. No. 5, Trudy Botan. Inst. Acad. Sci. (S.S.S.R.).** (C.A.)
- F.a.S.** Facts about Sugar. Hoboken, N.J.
- Facts ab. Sug.** Facts about Sugar. Hoboken, N.J.
- Farm and Forest.** Farm and Forest or Land Use and Rural Planning in West Africa. Incorporating The Nigerian Forester. Ibadan, Nigeria.
- Farm and Home Sci.** Farm and Home Science. Utah Agricultural Experiment Station. Logan, Utah.
- Farm Impl. Mach. Rev.** Farm Implement and Machinery Review. (Formerly Implement and Machinery Review.) London.
- Farm Res.** Farm Research. New York State Agricultural Experiment Station. Geneva, N.Y.
- Farm. S. Africa.** Farming in South Africa. Pretoria.
- Farm. StkBreed.** Farmer and Stock-Breeder and Chamber of Agriculture Journal. London.
- Farm. Week. S. Africa.** Farmer's Weekly. Bloemfontein.
- Farmacognosia.** Farmacognosia. Anales del Instituto José Celestino Mntis. Madrid.
- Fert. Feed. J.** Fertiliser, Feeding Stuffs and Farm Supplies Journal. London.
- Fette u. Seifen.** Fette und Seifen. Berlin.
- Fiji Agric. J.** Fiji Department of Agriculture. Agricultural Journal. Suva.
- Finska MosskFören. Årsb.** Finska Mosskulturföreningens Årsbok. Helsinki.
- Finska MosskFören. Vetenskap. Skrift.** Finska Mosskulturföreningens Vetenskapliga Skrifter. Helsinki.
- Fla. Agric. Expt. Sta. Bull.** Florida. Agricultural Experiment Station. Bulletin. Gainesville, Fla.

# ABBREVIATIONS OF JOURNALS AND PERIODICALS

- Fla. Univ. Biol. Sci. Ser. Pub.** Publication of the Biological and Science Service. University of Florida. Gainesville, Fla.
- Food Res.** Food Research. Champaign, Illinois.
- For. Abs.** Forestry Abstracts. Oxford.
- Foreign Agric.** Foreign Agriculture. Washington, D.C.
- Foreign Agric. Bull.** Foreign Agriculture Bulletin. Washington, D.C.
- Forest Leaves.** Philadelphia.
- Forestry.** London.
- Forêt Québécoise.** (Biol. Abs.)
- Formosa Govt. Sug. Expt. Sta. Rept.** Report of the Government Sugar Experiment Station. Taiwan, Formosa.
- ForschDienst.** Forschungsdienst. Berlin.
- ForschDienst. Sonderh.** Forschungsdienst. Sonderheft. Berlin.
- Forstarchiv.** Hannover.
- Forstwiss. Cbl.** Forstwissenschaftliches Centralblatt. Berlin.
- Fox Forest Notes.** [Publishers: Caroline A. Fox Research and Administration Forest, New Hampshire Forest and Recreation Department.] Hillsboro, New Hampshire.
- Fruit-Grower.** The Fruit-Grower. Fruiterer, Florist and Market Gardener. London.
- Fruit World Melbourne.** Fruit World and Market Grower. Melbourne.
- Fruits Primeurs.** Fruits et Primeurs de l'Afrique du Nord et la Revue Française de l'Oranger. Casablanca.
- Fruitteelt.** De Fruitteelt. Nederlandsche Pomologische Vereeniging. Arnhem, Netherlands.
- G. Riscolt.** Il Giornale di Riscoltura. Vercelli, Italy.
- Ga. Coast. Pl. Expt. Sta. Bull.** Georgia Coastal Plain Agricultural Experiment Station. Bulletin. Tifton, Ga.
- Ga. Expt. Sta. Bull.** Georgia Experiment Station of the University System of Georgia. Bulletin. Experiment, Ga.
- Ga. Expt. Sta. Circ.** Georgia Experiment Station. Circular. Experiment, Ga.
- Ga. Univ. Bull.** University of Georgia. Bulletin. Athens, Ga.
- Gard. Chron.** Gardeners' Chronicle. London.
- Gartenbauwiss.** Die Gartenbauwissenschaft. Berlin.
- Gas J.** Gas Journal. London.
- Gaz. Cukrown.** Gazeta Cukrownicza (Journal of the Sugar Industry). Warsaw.
- Gedroiz Inst. Fert. Phosphate Fert.** Gedroiz Institute of Fertilizers and Soil Science. Phosphate Fertilizers (VIUAA. Fosfornye Udobrenia). Moscow.
- Gedroiz Inst. Fert. Potash Fert.** Gedroiz Institute of Fertilizers and Soil Science. Potash Fertilizers. (VIUAA. Kalinye Udobrenia). Moscow.
- Gedroiz Inst. Fert. Problems of Development of Reclaimed Soils.** Gedroiz Institute of Fertilizers and Soil Science. Problems of Development of Reclaimed Soils (VIUAA. Voprosy Okultiviraniya Vnov' Osvoivayemykh Zemel'). Moscow.
- Gedroiz Inst. Fert. Use of Disinfectants for Increasing Yields.** Gedroiz Institute of Fertilizers and Soil Science. Use of Disinfectants for Increasing Yields (VIUAA. "Primenenie Antiseptikov v Tselyakh Povysheniya Urozhaynosti"). Moscow.
- Geog. J.** Geographical Journal. London.

# ABBREVIATIONS OF JOURNALS AND PERIODICALS

- Geog. Rev.** The Geographical Review. New York.
- Geography.** London.
- Gesundh.-Ing.** Gesundheits-Ingenieur. Zeitschrift für die Gesamte Städtehygiene. Munich.
- Glas. Srpske Kral'evske Akad.** (Ber. serb.kgl. Akad.). (C.A.)
- Gold Coast Dept. Agric. Booklet.** Gold Coast Department of Agriculture. Booklet. Accra.
- Golfdorn.** Chicago.
- Gorn. Zh.** Gornyi Zhurnal. Moscow.
- Govt. Brit. Honduras.** Government of British Honduras. Belize.
- Growmore Leaflet.** "Growmore" Leaflet. Ministry of Agriculture and Fisheries. London.
- Growth.** Growth. A Journal for Studies of Development and Increase. Menasha, Wis.
- Hassadeh.** Hassadeh. A Monthly Review Devoted to Mixed Farming. Tel-Aviv, Palestine.
- Hawaii Agric. Expt. Sta. Bull.** Hawaii Agricultural Experiment Station. Bulletin. Honolulu.
- Hawaii Agric. Expt. Sta. Tech. Bull.** Hawaii Agricultural Experiment Station. Technical Bulletin. Honolulu.
- Hawaii Univ. Agric. Ext. Serv. Ext. Bull.** Hawaii University. Agricultural Extension Service Extension Bulletin. Honolulu.
- Hawaii. Plant. Rec.** Hawaiian Planters' Record. Honolulu.
- Hawaii. Sug. Plant. Assoc. Rept.** Hawaiian Sugar Planters' Association. Report. Honolulu.
- Helminth. Abs.** Helminthological Abstracts. St. Albans, England.
- Herb. Abs.** Herbage Abstracts. Aberystwyth, Wales.
- Herb. Abs. Suppl.** Herbage Abstracts Supplement. Aberystwyth, Wales.
- Hilgardia.** Berkeley, Calif.
- Hort. Abs.** Horticultural Abstracts. East Malling, Kent.
- Horticulture.** Boston.
- Hydrotekh. Sborn.** Hydrotekhnichny Sbornik (Hydrotechnical Bulletin).
- I.S.J.** The International Sugar Journal. London.
- Idaho Agric. Expt. Sta. Bull.** Idaho Agricultural Experiment Station. Bulletin. Moscow, Idaho.
- Idaho Forester.** The Idaho Forester. Moscow, Idaho.
- Ill. Agric. Expt. Sta. Bull.** Illinois Agricultural Experiment Station. Bulletin. Urbana, Ill.
- Ill. Agric. Expt. Sta. Circ.** Illinois Agricultural Experiment Station. Circular. Urbana, Ill.
- Imp. Agric. Bur. Joint Pub.** Imperial Agricultural Bureaux Joint Publication. London.
- Imp. Bur. Anim. Nutr. Tech. Commun.** Imperial Bureau of Animal Nutrition. Technical Communication. Aberdeen.
- Imp. Bur. Hort. Occ. Pap.** The Imperial Bureau of Horticulture and Plantation Crops. Occasional Papers. East Malling, Kent.
- Imp. Bur. Soil Sci. Tech. Commun.** Imperial Bureau of Soil Science. Technical Communication. Harpenden, England.
- Imp. Counc. Agric. Res.** The Imperial Council of Agricultural Research. Delhi.

# ABBREVIATIONS OF JOURNALS AND PERIODICALS

- Imp. Council. Agric. Res. Misc. Bull.** The Imperial Council of Agricultural Research. Miscellaneous Bulletin. Delhi.
- India Rubber World.** New York.
- Indian Cent. Cotton Cttee. Conf.** Indian Central Cotton Committee. Conference.
- Indian Cent. Cotton Cttee. Technol. Bull.** Indian Central Cotton Committee Technological Laboratory. Technological Bulletin. Matunga, Bombay.
- Indian Farm.** Indian Farming. Delhi.
- Indian Forest Rec. Silvicult.** The Indian Forest Records. Silviculture. Delhi.
- Indian Forester.** Lahore.
- Indian Forester Leaflet (Chem.).** Indian Forester Leaflet (Chemistry). Lahore.
- Indian J. Agric. Sci.** The Indian Journal of Agricultural Science. Delhi.
- Indian J. Pharm.** The Indian Journal of Pharmacy. Benares.
- Indian J. Phys.** Indian Journal of Physics. Calcutta.
- Indian J. Stat.** Indian Journal of Statistics. Calcutta.
- Indian Soc. Soil Sci. Calcutta.** The Indian Society of Soil Science. Calcutta.
- Indian Sug.** Indian Sugar. Cawnpore.
- Indiana Agric. Expt. Sta. Bull.** Purdue University. Agricultural Experiment Station. Bulletin. Lafayette, Indiana.
- Indiana Agric. Expt. Sta. Circ.** Purdue University. Agricultural Experiment Station. Circular. Lafayette, Indiana.
- Indust. Engng. Chem.** Industrial and Engineering Chemistry. Easton, Pa.
- Indust. Engng. Chem. (Anal. Ed.).** Industrial and Engineering Chemistry. Analytical Edition. Easton, Pa.
- Ingenieria Mex.** Ingenieria. Mexico.
- Inst. Agron. Campinas Bol.** Instituto Agronomico de Campinas. Boletim. São Paulo.
- Inst. Agron. Campinas Bol. Tec.** Instituto Agronomico de Campinas. Boletim Tecnico. São Paulo.
- Inst. Belge Amélior. Better. Pub.** Institut Belge pour l'Amélioration de la Betterave. Publication. Tirlemont, Belgium.
- Inst. Geol. Român. Stud. Tech.** Institutul Geologic al României. Studii Tehnice și Economice. Bukarest.
- Inst. Nacl. Investig. Agron. Cuad.** Instituto Nacional de Investigaciones Agronómicas. Cuaderno. Madrid.
- Inst. Pub. Cleans. Ann. Conf.** The Institute of Public Cleansing. Annual Conference. Scarborough.
- Inst. Sewage Purif. Ann. Summer Meetg.** The Institute of Sewage Purification. Annual Summer Meeting. Hampton-on-Thames, Middx.
- Int. Cong. Microbiol. Abs. Commun.** International Congress for Microbiology. Abstracts of Communications. 3rd.—New York.
- Int. Cong. Trop. Agric.** International Congress of Tropical and Subtropical Agriculture. 8th.—Tripoli.
- Int. Sug. J.** The International Sugar Journal. London.
- Ion. Ion. Revista Española de Química Aplicada.** Madrid.
- Iowa Agric. Expt. Sta. Bull.** Iowa Agricultural Experiment Station. Bulletin. Ames, Ia.

# ABBREVIATIONS OF JOURNALS AND PERIODICALS

- Iowa Agric. Expt. Sta. Rept.** Iowa Agricultural Experiment Station. Report on Agricultural Research. Part I. Ames, Ia.
- Iowa Agric. Expt. Sta. Res. Bull.** Iowa Agricultural Experiment Station. Research Bulletin. Ames, Ia.
- Iowa St. Coll. J. Sci.** Iowa State College of Agriculture and Mechanic Arts. Journal of Science. Ames, Ia.
- Ital. Agric. L'Italia Agricola.** Rome.
- Izv. Akad. Nauk Belorus. S.S.R. Otdel. Estestven. Nauk.** (C.A.)
- Izv. Azerbaidzhan. Fil. Akad. Nauk.** (C.A.)
- J. Agric. Assoc. China.** Journal of the Agricultural Association of China. Chiangtu.
- J. Agric. Chem. Soc. Japan.** Journal of the Agricultural Chemical Society of Japan. Tokyo.
- J. Agric. Res.** Journal of Agricultural Research. Washington, D.C.
- J. Agric. Sci.** Journal of Agricultural Science. London.
- J. Agric. Univ. P.R.** Journal of Agriculture of the University of Puerto Rico. Río Piedras.
- J. Agron. S. Paulo.** Jornal de Agronomia. Piracicaba, São Paulo.
- J. Agron. Vet.** Jornadas Agro-nómicas y Veterinarias. Buenos Aires.
- J. Amer. Chem. Soc.** Journal of the American Chemical Society. Washington, D.C.
- J. Amer. Pharm. Assoc.** Journal of the American Pharmaceutical Association. Washington, D.C.
- J. Amer. Soc. Agron.** Journal of the American Society of Agronomy. Geneva, N.Y.
- J. Amer. Stat. Assoc.** Journal of the American Statistical Association. Washington, D.C.
- J. Amer. Water Works Assoc.** Journal of the American Water Works Association. New York.
- J. Assoc. Chin. Amer. Engrs.** Journal of the Association of Chinese and American Engineers. Peking.
- J. Assoc. Off. Agric. Chem.** Journal of the Association of Official Agricultural Chemists. Washington, D.C.
- J. Aust. Inst. Agric. Sci.** The Journal of the Australian Institute of Agricultural Science. Sydney.
- J. Bact.** Journal of Bacteriology. Baltimore, Md.
- J. Bd. Greenk. Res.** Journal of the Board of Greenkeeping Research. Bingley, Yorks.
- J. Biol. Chem.** The Journal of Biological Chemistry. Baltimore, Md.
- J. Calif. Hort. Soc.** Journal California Horticultural Society. (Biol. Abs.)
- J. Chem. Engng. China.** Journal of Chemical Engineering China. Tientsin.
- J. Chem. Soc. Japan.** Journal of the Chemical Society of Japan. Tokyo.
- J. Chinese Chem. Soc.** Journal of the Chinese Chemical Society. Peiping, China.
- J. Colo.-Wyo. Acad. Sci.** Journal of the Colorado-Wyoming Academy of Science. (R.A.M.)
- J. Dairy Sci.** Journal of Dairy Science. Lancaster, Pa.
- J. Dept. Agric. S. Aust.** Journal of the Department of Agriculture of South Australia. Adelaide.
- J. Dept. Agric. Victoria.** Journal of the Department of Agriculture of Victoria. Melbourne.



# ABBREVIATIONS OF JOURNALS AND PERIODICALS

- J. Dept. Agric. W. Aust.** Journal of the Department of Agriculture of Western Australia. Perth.
- J. Ecol.** Journal of Ecology. London.
- J. Econ. Ent.** Journal of Economic Entomology. Menasha, Wis.
- J. Expt. Biol.** The Journal of Experimental Biology. Cambridge.
- J. Farm Econ.** Journal of Farm Economics. Menasha, Wis.
- J. Forest. Suisse.** Journal Forestier Suisse. Berne.
- J. Forestry.** Journal of Forestry. Washington, D.C.
- J. Geog.** Journal of Geography. Lancaster, Pa.
- J. Geol.** Journal of Geology. Chicago.
- J. Geomorph.** Journal of Geomorphology.
- J. Hort. Assoc. Japan.** Journal of the Horticultural Association of Japan. Faculty of Agriculture, Tokyo Imperial University. Tokyo.
- J. Hyg.** The Journal of Hygiene. Cambridge.
- J. Imp. Agric. Expt. Sta. Nisigahara.** Journal of the Imperial Agricultural Experiment Station Nisigahara. Tokyo.
- J. Indian Chem. Soc.** Journal of the Indian Chemical Society. Calcutta.
- J. Indian Chem. Soc. Indust. Ed.** Journal of the Indian Chemical Society. Industrial and News Edition. Calcutta.
- J. Inst. Brew.** Journal of the Institute of Brewing. London.
- J. Inst. Sewage Purif.** Journal of the Institute of Sewage Purification. Hampton-on-Thames, Middx.
- J. Jamaica Agric. Soc.** Journal of the Jamaica Agricultural Society. Kingston.
- J. Land Agents' Soc.** Journal of the Land Agents' Society. London.
- J. Land Pub. Util. Econ.** (E.S.R.)
- J. Landw.** Journal für Landwirtschaft. Berlin.
- J. Malaya Br. Brit. Med. Assoc.** Journal of the Malaya Branch, British Medical Association. Singapore.
- J. Met. Soc. Japan.** Journal of the Meteorological Society of Japan. Tokyo.
- J. Min. Agric.** The Journal of the Ministry of Agriculture and Fisheries. London.
- J. N. H. Hort. Soc.** Journal of the New Hampshire Horticultural Society. Durham, N.H.
- J. N. Y. Bot. Gdn.** Journal of the New York Botanical Garden. New York.
- J. Nutr.** The Journal of Nutrition. Philadelphia, Pa.
- J. Opt. Soc. Amer.** Journal of the Optical Society of America. New York.
- J. Path. Bact.** The Journal of Pathology and Bacteriology. Cambridge.
- J. Phys. Chem.** Journal of Physical Chemistry. Baltimore, Md.
- J. Pomol.** Journal of Pomology and Horticultural Science. London.
- J. Proc. Roy. Soc. N.S.W.** Journal and Proceedings of the Royal Society of New South Wales. Sydney.
- J. Res. Natl. Bur. Stand.** Journal of Research of the National Bureau of Standards. Washington, D.C.
- J. Roy. Afric. Soc.** Journal of the Royal African Society. London.
- J. Roy. Agric. Soc. England.** Journal of the Royal Agricultural Society of England. London.

# ABBREVIATIONS OF JOURNALS AND PERIODICALS

- J. Roy. Hort. Soc.** Journal of the Royal Horticultural Society. London.
- J. Roy. Sanit. Inst.** Journal of the Royal Sanitary Institute. London.
- J. Roy. Soc. Arts.** Journal of the Royal Society of Arts. London.
- J. Roy. Soc. W. Aust.** Journal of the Royal Society of Western Australia. Perth.
- J. Rubber Res. Inst. Malaya.** Journal of the Rubber Research Institute of Malaya. Kuala Lumpur.
- J. S. Afric. Bot.** The Journal of South African Botany. Kirstenbosch.
- J. S. Afric. Chem. Inst.** Journal of the South African Chemical Institute. Johannesburg.
- J. S. Afric. Forestry Assoc.** Journal of the South African Forestry Association. Pretoria.
- J. Sci. Instrum.** Journal of Scientific Instruments. London.
- J. Sci. Soil Japan.** Journal of the Science of Soil and Manure Japan (Nippon Dozyô-Hiryô-Gaku Zasshi). Tokyo.
- J. Sediment. Petrol.** Journal of Sedimentary Petrology. Tulsa, Okla.
- J. Soc. Chem. Indust.** Journal of the Society of Chemical Industry. London.
- J. Soc. Chem. Indust. Japan.** Journal of the Society of Chemical Industry Japan (Kôgyô Kwagaku Zasshi). Tokyo.
- J. Soc. Trop. Agric. Taiwan.** Journal of the Society of Tropical Agriculture. Taihoku Imperial University. Taihoku, Taiwan.
- J. Tenn. Acad. Sci.** Journal of the Tennessee Academy of Science. Nashville, Tenn.
- J. Thailand Soc. Nat. Hist. Suppl.** Journal of the Thailand Society. Natural History Supplement. Bangkok.
- J. Univ. Bombay.** Journal of the University of Bombay. Bombay.
- J. Yorks. Agric. Soc.** Journal of the Yorkshire Agricultural Society. York.
- J. Wash. Acad. Sci.** Journal of the Washington Academy of Sciences. Washington, D.C.
- Jahrb. Wiss. Bot.** Jahrbücher für Wissenschaftliche Botanik. Berlin.
- Jamaica Dept. Sci. Agric. Bull.** Department of Science and Agriculture. Jamaica. Bulletin. Kingston.
- Jamaican Assoc. Sug. Tech. Quart.** The Jamaican Association of Sugar Technologists, Quarterly. Kingston.
- Japan Imp. Agric. Expt. Sta. Spec. Rept.** (C.A.)
- Japan J. Astron. Geophys.** Japanese Journal of Astronomy and Geophysics. Tokyo.
- Jealott's Hill Res. Sta. Bull.** Jealott's Hill Research Station. Bulletin. Bracknell, Berks.
- Kamchat. Sborn.** Kamchatsky Sbornik. Moscow-Leningrad.
- Kans. Agric. Expt. Sta. Bull.** Agricultural Experiment Station. Kansas State College of Agriculture and Applied Science. Bulletin. Manhattan, Kans.
- Kans. Agric. Expt. Sta. Circ.** Agricultural Experiment Station. Kansas State College of Agriculture and Applied Science. Circular. Manhattan, Kans.

# ABBREVIATIONS OF JOURNALS AND PERIODICALS

- Kans. Agric. Expt. Sta. Tech. Bull.** Agricultural Experiment Station. Kansas State College of Agriculture and Applied Science. Technical Bulletin. Manhattan, Kans.
- Kazakh. S.-Kh. Inst. Alma-Ata.** Kazakhsky Sel'skokhoziastvennie Institut, Alma-Ata.
- Kent Farm. J.** Kent Farmers' Journal. Maidstone.
- Keram. Sborn.** Keramicheskyy Sbornik. Leningrad.
- Kgl. Fysiogr. Sällsk. Lund Förh.** Kungl. Fysiografiska Sällskapets i Lund. Förhandlingar. Lund, Sweden.
- Kgl. LantbrAkad. Tidskr.** Kungliga Lantbruksakademiens Tidskrift. (Formerly Kungliga Lantbruksakademiens Handlingar och Tidskrift.) Stockholm.
- Kgl. Norske Vidensk. Selsk. Forh.** Kongeligt Norske Videnskabers Selskabs. Forhandlingar. Trondhjem.
- Khim. Sotsial. Zemled.** Khimistsia Sotsialisticheskogo Zemledelia (Chemisation of Socialistic Agriculture). Moscow.
- Kirton Agric. Inst. Rept. Bulb Expts.** The Agricultural Institute and Experimental Station, Kirton. Report on Bulb Experiments. Kirton, Lincs.
- Kirton Agric. J.** Kirton Agricultural Journal. Kirton, Lincs.
- Kisérlet. Közlem.** Kísérletügyi Közlemények (Reports of the Hungarian Agricultural Experiment Stations). Budapest.
- Kolloid-Ztschr.** Kolloid-Zeitschrift. Zeitschrift für Wissenschaftliche und Technische Kolloidchemie. Dresden.
- Kolloid. Zh.** Kolloidny Zhurnal. Zhurnal Teoreticheskoi i Prikladnoi Khimii i Fiziki (Colloid Journal. The Journal of Theoretical and Applied Chemistry). Voronezh, U.S.S.R.
- Kranke Pflanze.** Die Kranke Pflanze. Dresden.
- Kühn-Archiv.** Kühn-Archiv. Arbeiten aus dem Landwirtschaftlichen Institut der Universität Halle. Halle on the Saale.
- Kulturtech.** Der Kulturtechniker. Breslau.
- Ky. Agric. Expt. Sta. Bull.** Kentucky Agricultural Experiment Station. Bulletin. Lexington, Ky.
- La. Agric. Expt. Sta. Bull.** Louisiana Agricultural Experiment Stations. Bulletin. Baton Rouge, La.
- Lancet.** The Lancet. London.
- Land Policy Rev.** The Land Policy Review. Washington, D.C.
- Landbouw.** Buitenzorg.
- Landbouwk. Tijdschr.** Landbouwkundig Tijdschrift. Wageningen.
- Landenberg Lab. Pub.** Publication of the Landenberg Laboratory. Landenberg, Pa.
- Landw. Jahrb.** Landwirtschaftliche Jahrbücher. Berlin.
- Landw. Jahrb. Schweiz.** Landwirtschaftliches Jahrbuch der Schweiz. Bern.
- LantbrHögsk. Ann.** Lantbruks-högskolans Annaler (Annals of the Agricultural College of Sweden). Uppsala.
- LantbrHögsk. Inst. Allm. JordbrLära.** Lantbruks-högskolans Institution för Allmän Jordbrukslära. Uppsala.
- LantbrHögsk. JordbrFörsöksanst. Medd.** Lantbruks-högskolans Jordbruksförsöksanstalt. Meddelande. Norrtälje, Sweden.
- Lantmannen.** Stockholm.
- Len i Konoplia.** Len i Konoplia (Flax and Hemp). Moscow.

# ABBREVIATIONS OF JOURNALS AND PERIODICALS

- Lenin Acad. Agric. Sci. Mat. Comm. Deserts.** Lenin Academy of Agricultural Science. Materials of the Commission for the Development of Deserts, Semi-deserts and Highlands (VASKhNIL. Vsesoiuznaia Akademia Sel'sko-Khoziastvennykh Nauk imeni Lenina. Osvoenie Pustyn, Polupustyn i Vysokogory. Materialy Komissii VASKhNIL). Moscow.
- Lesnická Práce** (Oeuvre Forestière). Pisek, Czechoslovakia.
- Lesnoe Khoz.** Lesnoe Khoziastvo i Lesoeksploatatsia (Forest Husbandry and Forest Utilization). Leningrad.
- Lighter.** The Lighter. Ottawa.
- Listy Cukr.** Listy Cukrovarnické. Prague.
- Lloydia.** Cincinnati, Ohio.
- Long Ashton Agric. Hort. Res. Sta. Ann. Rept.** The Annual Report of the Agricultural and Horticultural Research Station (The National Fruit and Cider Institute). Long Ashton, Bristol.
- Maat. Alkak.** Maataloustieteellinen Aikakauskirja (Journal of the Scientific Agricultural Society of Finland). Helsinki.
- Macdonald Coll. J.** Macdonald College Journal. Quebec.
- Maderil.** Buenos Aires.
- Madras Agric. J.** Madras Agricultural Journal. Coimbatore.
- Madroño.** San Francisco.
- Magyar Kir. Gazdas. Akad. Munk.** Magyar Királyi Gazdasági Akadémia. Munkái (Royal Hungarian Agricultural Academy. Publication). Magyaróvár.
- Malay. Agric. J.** The Malayan Agricultural Journal. Kuala Lumpur.
- Malay. Plant. Man.** Malayan Planting Manual. Kuala Lumpur.
- Manchoukuo Agric. Expt. Sta. Res. Bull.** Agricultural Experiment Station, Kung-Chu-Ling. Research Bulletin. Manchoukuo.
- Manitoba Soil Surv. Soils Rept.** Manitoba Soil Survey. Soils Report. Winnipeg.
- Manuf. Chem.** Manufacturing Chemist. London.
- Mass. Agric. Expt. Sta. Bull.** Massachusetts Agricultural Experiment Station. Bulletin. Amherst, Mass.
- Mass. Fruit Grow. Assoc. Rept.** Massachusetts Fruit Growers' Association. Report of the Annual Meeting. Amherst, Mass.
- Massey Agric. Coll. Bull.** Massey Agricultural College Bulletin. Palmerston North, N.Z.
- Massey Agric. Coll. Proc. Ann. Meetg. Sheep Farm.** Massey Agricultural College. Proceedings of the Annual Meeting of Sheep Farmers. Palmerston North, N.Z.
- Mat. Term. Ért.** Matematikai és Természettudományi Értesítő (Review of Mathematics and Natural Sciences). Budapest.
- Mauritius Dept. Agric. Gen. Ser. Bull.** Mauritius Department of Agriculture. General Series. Bulletin. Port Louis.
- Md. Agric. Expt. Sta. Bull.** Maryland. Agricultural Experiment Station. Bulletin. College Park, Md.
- Md. Agric. Soc. Farm Bur. Rept.** Maryland Agricultural Society. Farm Bureau Report. (E.S.R.)
- Md. St. Hort. Soc. Proc.** Maryland State Horticultural Society. The Proceedings of the Annual Meeting. College Park, Md.

# ABBREVIATIONS OF JOURNALS AND PERIODICALS

- Me. Agric. Expt. Sta. Bull.** Maine Agricultural Experiment Station. Bulletin. Orono, Me.
- Me. Agric. Ext. Serv. Ext. Bull.** Maine Agricultural Extension Service. Extension Bulletin. Orono, Me.
- Med. Parasitol.** Medical Parasitology and Parasitic Diseases (Meditsinskaia Parazitologia i Parazitarnye Bolezni). Moscow.
- Medd. Norske Skogforsoksv.** Meddelelser fra det Norske Skogforsoksvesen. Oslo.
- Medd. Skogsforsoksanst.** Meddelanden från Statens Skogsforsoksanstalt (Reports of the Swedish Institute of Experimental Forestry). Stockholm.
- Meded. Alg. Proefsta. Landbouw.** Mededeelingen van het Algemeen Proefstation voor den Landbouw. Buitenzorg.
- Meded. Deli Proefsta.** Mededeelingen van het Deli Proefstation te Medan-Sumatra. Medan.
- Meded. Inst. Suikerbiet.** Mededeelingen van het Instituut voor Suikerbietenteelt. Bergen-op-Zoom.
- Mem. Acad. Cienc. Madrid Ser. Cienc. Nat.** Memorias de la Real Academia de Ciencias Exactas, Físicas y Naturales de Madrid. Serie de Ciencias Naturales. Madrid.
- Mem. An. Inst. Mec. Hidraul. Agric. B. Aires.** Memoria Anual Instituto de Mecánica e Hidráulica Agrícola. Facultad de Agronomía y Veterinaria, Universidad de Buenos Aires.
- Met. Hydrol.** Meteorologia i Hydrologia (Meteorology and Hydrology). Moscow.
- Météorologie.** La Météorologie. Paris.
- Mezőg. Kutat.** Mezőgazdasági Kutatások (Agricultural Researches). Budapest.
- Mich. Acad. Sci. Pap.** Michigan Academy of Science, Arts and Letters. Papers. Ann Arbor.
- Mich. Agric. Expt. Sta. Circ.** Agricultural Experiment Station Circular. Michigan. East Lansing, Mich.
- Mich. Agric. Expt. Sta. Circ. Bull.** Agricultural Experiment Station of Michigan Circular Bulletin. East Lansing, Mich.
- Mich. Agric. Expt. Sta. Quart. Bull.** Agricultural Experiment Station of Michigan. Quarterly Bulletin. East Lansing, Mich.
- Mich. Agric. Expt. Sta. Spec. Bull.** Agricultural Experiment Station of Michigan. Special Bulletin. East Lansing, Mich.
- Mikrobiol. Zh.** Mikrobiologichny Zhurnal (Microbiological Journal). Kiev.
- Mikrobiologia.** Mikrobiologia (Microbiology). Moscow.
- Milchw. Forsch.** Milchwirtschaftliche Forschungen. Berlin.
- Min. Agric. Advis. Leaflet.** Ministry of Agriculture and Fisheries. Advisory Leaflet. London.
- Min. Agric. Argentina Pub. Misc.** Ministerio de Agricultura Republica Argentina. Publicación Miscelánea. Buenos Aires.
- Min. Agric. Brasil.** Ministerio da Agricultura, Serviço de Informação Agrícola. Rio de Janeiro, Brazil.
- Min. Agric. Bull.** Ministry of Agriculture and Fisheries. Bulletin. London.
- Min. Agric. Egypt.** Ministry of Agriculture. Alexandria, Egypt.

# ABBREVIATIONS OF JOURNALS AND PERIODICALS

- Min. Agric. Madrid.** Ministerio de Agricultura. Madrid.
- Miner. Indust.** The Mineral Industry. New York City.
- Minn. Acad. Sci. Proc.** Minnesota Academy of Sciences. Proceedings.
- Minn. Agric. Expt. Sta. Bull.** Minnesota Agricultural Experiment Station. Bulletin. St. Paul.
- Minn. Agric. Expt. Sta. Tech. Bull.** Minnesota Agricultural Experiment Station. Technical Bulletin. St. Paul.
- Minn. Hort.** Minnesota Horticulturist. Minneapolis.
- Minn. Univ. Agric. Ext. Div. Bull.** Minnesota University. Agricultural Extension Division. Bulletin. St. Paul.
- Miss. Agric. Expt. Sta. Bull.** Mississippi Agricultural Experiment Station. Bulletin. A. and M. College, Miss.
- Miss. Agric. Expt. Sta. Tech. Bull.** Mississippi Agricultural Experiment Station. Technical Bulletin. A. and M. College, Miss.
- Miss. Farm Res.** Mississippi Farm Research. A. and M. College, Miss.
- Missouri Agric. Expt. Sta. Bull.** Missouri Agricultural Experiment Station. Bulletin. Columbia, Mo.
- Missouri Agric. Expt. Sta. Circ.** Missouri Agricultural Experiment Station. Circular. Columbia, Mo.
- Missouri Agric. Expt. Sta. Res. Bull.** Missouri Agricultural Experiment Station. Research Bulletin. Columbia, Mo.
- Mitt. Bewässer. Auslandsh.** Mitteilungen über Bewässerungswesen. Auslandshefte (Tízantúli Öntözésügyi Közlemények). Budapest.
- Mitt. Forstwirt. Forstwiss.** Mitteilungen aus Forstwirtschaft und Forstwissenschaft. Hannover.
- Mitt. H.-Görling-Akad. Deutsch. Forstwiss.** Mitteilungen von der Hermann-Görling Akademie für Deutsche Forstwissenschaft. (Berlin.)
- Mitt. Landw.** Mitteilungen der Landwirtschaft. Berlin.
- Mitt. Lebensm. Hyg.** Mitteilungen aus dem Gebiet der Lebensmitteluntersuchung und Hygiene. Bern.
- Mitt. Moortwirtsch.** (Forschiedienst.)
- Mitt. Schweiz. Anst. Forstl. Versuchsw.** Mitteilungen der Schweizerischen Anstalt für das Forstliche Versuchswesen. Zurich.
- Mo. Agric. Bull. Palestine.** Monthly Agricultural Bulletin. Palestine.
- Mo. Bull. Agric. Sci. Pract.** Monthly Bulletin of Agricultural Science and Practice. Rome.
- Mont. Agric. Expt. Sta. Bull.** Montana Agricultural Experiment Station. Bulletin. Bozeman, Mont.
- Mont. Agric. Expt. Sta. Circ.** Montana Agricultural Experiment Station. Circular. Bozeman, Mont.
- Mont. Agric. Expt. Sta. War Circ.** Montana Agricultural Experiment Station. War Circular. Bozeman, Mont.
- Münch. Med. Wochenschr.** Münchener Medizinische Wochenschrift. München.
- Mycologia.** Lancaster, Pa.
- N.C. Agric. Expt. Sta. Agron. Inf. Circ.** Agricultural Experiment Station of the North Carolina State College of Agriculture and Engineering. Agron. Information Circular. Raleigh, N.C.

# ABBREVIATIONS OF JOURNALS AND PERIODICALS

- N.C. Agric. Expt. Sta. Bull.** Agricultural Experiment Station of the North Carolina State College of Agriculture and Engineering. Bulletin. Raleigh, N.C.
- N.C. Agric. Expt. Sta. Spec. Circ.** Agricultural Experiment Station of the North Carolina State College of Agriculture and Engineering. Special Circular. Raleigh, N.C.
- N.C. Agric. Expt. Sta. Tech. Bull.** North Carolina Agricultural Experiment Station. Technical Bulletin. Raleigh, N.C.
- N. Dak. Agric. Expt. Sta. Bimo. Bull.** North Dakota Agricultural Experiment Station. Bimonthly Bulletin. Fargo, N. Dak.
- N. Dak. Agric. Expt. Sta. Bull.** North Dakota Agricultural Experiment Station. Bulletin. Fargo, N. Dak.
- N.-E. For. Expt. Sta. Tech. Note.** Northeastern Forest Experiment Station. Technical Note. New Haven, Conn.
- N. Guinea Agric. Gaz.** The New Guinea Agricultural Gazette. Rabaul.
- N.H. Agric. Expt. Sta. Bull.** New Hampshire Agricultural Experiment Station. Bulletin. Durham, N.H.
- N.H. Agric. Expt. Sta. Circ.** New Hampshire Agricultural Experiment Station. Circular. Durham, N.H.
- N.H. Agric. Expt. Sta. Sci. Contr.** New Hampshire Agricultural Experiment Station. Scientific Contribution. Durham, N.H.
- N.J. Agric. Expt. Sta. Bull.** New Jersey Agricultural Experiment Station. Bulletin. New Brunswick, N.J.
- N.J. Agric. Expt. Sta. Circ.** New Jersey Agricultural Experiment Station. Circular. New Brunswick, N.J.
- N.J. St. Dept. Conserv. Geol. Ser. Bull.** New Jersey State Department of Conservation and Development. Geologic Series Bulletin. Trenton, N.J.
- N.J. St. Hort. Soc. News.** New Jersey State Horticultural Society. News. New Brunswick.
- N. Mex. Agric. Expt. Sta. Bull.** Agricultural Experiment Station of the New Mexico College of Agriculture and Mechanic Art. Bulletin. State College, N. Mex.
- N.S.W. Irrig. Res. Ext. Cttee.** New South Wales Irrigation Research Extension Committee.
- N.-W. Sci.** Northwest Science. Cheney, Wash.
- N.Y. Dept. Sanit.** Department of Sanitation. New York.
- N.Y. St. Agric. Expt. Sta. Bull.** New York State Agricultural Experiment Station. Bulletin. Geneva, N.Y.
- N.Y. St. Agric. Expt. Sta. Circ.** New York State Agricultural Experiment Station. Circular. Geneva, N.Y.
- N.Y. St. Agric. Expt. Sta. Quart. Bull.** New York State Agricultural Experiment Station. Quarterly Bulletin. Geneva, N.Y.
- N.Y. St. Hort. Soc. Proc. Ann. Meetg.** New York State Horticultural Society. The Proceedings of the Annual Meeting. Le Roy.
- N.Z. Dept. Sci. Indust. Res. Ann. Rept.** New Zealand Department of Scientific and Industrial Research. Annual Report. Wellington.
- N.Z. Dept. Sci. Indust. Res. Bull.** New Zealand Department of Scientific and Industrial Research. Bulletin. Wellington.

# ABBREVIATIONS OF JOURNALS AND PERIODICALS

- N.Z. J. Agric.** New Zealand Journal of Agriculture. Wellington.
- N.Z. J. Forestry.** New Zealand Journal of Forestry. Wellington.
- N.Z. J. Sci. Tech.** New Zealand Journal of Science and Technology. Wellington.
- Nachr. Deut. PflSchDienst.** Nachrichtenblatt für den Deutschen Pflanzenschutzdienst. Berlin-Dahlem.
- Nagpur Agric. Coll. Mag.** Nagpur Agricultural College Magazine. Nagpur, C.P.
- Nagpur Univ. J.** Nagpur University Journal. Nagpur.
- Nanking J.** Nanking Journal (Section C, Agriculture) (Univ Nanking, Chengtu). Szechnan, China.
- Narod. Khoz. Kazakh.** (C.A.)
- Nassau Guardian.**
- Nat. Appl. Sci. Bull.** Natural and Applied Science Bulletin. University of the Philippines. Manila.
- Natl. Cattleman's Cong. Bogotá.** Colombia. (C.A.)
- Natl. Geol. Surv. China Soil Bull.** The National Geological Survey of China. Soil Bulletin. Peking.
- Natl. Geol. Surv. China Spec. Soils Pub.** The National Geological Survey of China. Special Soils Publication. Peking.
- Natl. Inst. Agric. Engng.** National Institute of Agricultural Engineering. Askham Bryan, Yorks.
- Natl. Paint Varnish Lacquer Assoc. Sci. Sect. Circ.** National Paint, Varnish and Lacquer Association, Inc., Scientific Section, Circular. Washington, D.C.
- Natl. Shade Tree Conf. Proc.** National Shade Tree Conference, Proceedings of the Annual Meeting. U.S.A.
- Nature.** London.
- Naturwissenschaften.** Die Naturwissenschaften. Berlin.
- Natuurwet. Tijdschr. Ned. Ind.** Natuurwetenschappelijk Tijdschrift voor Nederlandsch-Indië. (Formerly Natuurkundig Tijdschrift voor Nederlandsch-Indië.) Batavia.
- Nauch. Inst. Udob.** (C.A.)
- Nauch. Zap. Sakh. Prom.** Nauchnye Zapiski po Sakharnoi Promyshlennosti (Scientific Memoirs of the Sugar Industry). Kiev.
- Nauch. Zap. Sakh. Prom. Agron.** Nauchnye Zapiski po Sakharnoi Promyshlennosti, Agronomicheskoy Vypusk (Scientific Memoirs of the Sugar Industry, Agricultural Series). Kiev.
- Neb. Agric. Expt. Sta. Bull.** Nebraska Agricultural Experiment Station. Bulletin. Lincoln, Neb.
- Neb. Agric. Expt. Sta. Circ.** Nebraska Agricultural Experiment Station. Circular. Lincoln, Neb.
- Neb. Agric. Expt. Sta. Res. Bull.** Nebraska Agricultural Experiment Station. Research Bulletin. Lincoln, Neb.
- Neb. St. Irrig. Assoc. Ann. Conv.** Nebraska State Irrigation Association Annual Convention. (Sugar.)
- Nev. Agric. Expt. Sta. Bull.** Nevada. Agricultural Experiment Station. Bulletin. Reno.
- Niger. Forester.** Nigerian Forester. (Now Farm and Forest.) Ibadan.
- Nord. JordbrForsk.** Nordisk Jordbrugsforskning. Copenhagen.
- Nova Scotia Dept. Agric. Bull.** Nova Scotia Department of Agriculture. Bulletin. Halifax.



# ABBREVIATIONS OF JOURNALS AND PERIODICALS

- Nyasaland Agric. Quart. J.** The Nyasaland Agricultural Quarterly Journal. (*Formerly* The Nyasaland Tea Association. Quarterly Journal.) Blantyre.
- Nyasaland Tea Assoc. Quart. J.** The Nyasaland Tea Association. Quarterly Journal. (*Now* The Nyasaland Agricultural Quarterly Journal.) Blantyre.
- Obst- u. Gemüseb.** Der Obst- und Gemüsebau. Berlin.
- Occas. Pub. Sci. Hort.** Occasional Publication on Scientific Horticulture. Tunbridge Wells, Kent.
- Ohio Agric. Expt. Sta. Bimo. Bull.** Ohio Agricultural Experiment Station. Bimonthly Bulletin. Wooster, Ohio.
- Ohio Agric. Expt. Sta. Bull.** Ohio Agricultural Experiment Station. Bulletin. Wooster, Ohio.
- Ohio J. Sci.** Ohio Journal of Science. Columbus, Ohio.
- Ohio St. Univ. Dept. Rural Econ. Mimeo. Bull. (E.S.R.)**
- Ohio Veg. Potato Grow. Assoc. Proc.** Ohio Vegetable and Potato Growers' Association. Proceedings of the Annual Meeting. Columbus, Ohio.
- Okla. Agric. Expt. Sta. Bull.** Oklahoma Agricultural Experiment Station. Bulletin. Stillwater, Okla.
- Okla. Agric. Expt. Sta. Circ.** Oklahoma Agricultural Experiment Station. Circular. Stillwater, Okla.
- Okla. Agric. Expt. Sta. Tech. Bull.** Oklahoma Agricultural Experiment Station. Technical Bulletin. Stillwater, Okla.
- Ontario Dept. Agric. Bull.** Ontario Department of Agriculture. Bulletin. Toronto.
- Oreg. Agric. Expt. Sta. Bull.** Agricultural Experiment Station. Oregon State Agricultural College. Bulletin. Corvallis, Oreg.
- Oreg. Agric. Expt. Sta. Circ.** Agricultural Experiment Station. Oregon State Agricultural College. Circular. Corvallis, Oreg.
- Oreg. Agric. Expt. Sta. Circ. Inform.** (Biol. Abs.)
- Oreg. Sch. Forestry Leaflet.** Oregon State College. School of Forestry. Leaflet. Corvallis, Oreg.
- Oreg. St. Hort. Soc. Ann. Rept.** Oregon State Horticultural Society. Annual Report. Corvallis.
- Oreg. St. Hort. Soc. Proc. Ann. Meetg.** Oregon State Horticultural Society. Proceedings of the Annual Meeting. Corvallis.
- Ovoshchevodstvo** (Vegetable Culture). (*Merged* with Sadovodstvo to form Sady i Ogorody.)
- P.B.A.** Plant Breeding Abstracts. Cambridge.
- P. R. Agric. Expt. Sta. Ann. Rept.** Puerto Rico Agricultural Experiment Station. Annual Report. Rio Piedras, P. R.
- P. R. Agric. Expt. Sta. Circ.** Puerto Rico Agricultural Experiment Station. Circular. Rio Piedras, P. R.
- P. R. Agric. Expt. Sta. Mimeo. Rept.** Puerto Rico Agricultural Experiment Station. Mimeographed Report. Rio Piedras, P. R.
- P. R. Agric. Expt. Sta. Res. Bull.** Puerto Rico Agricultural Experiment Station. Research Bulletin. Rio Piedras, P. R.

# ABBREVIATIONS OF JOURNALS AND PERIODICALS

- P. R. Esta. Expt. Agric. Bol.** Puerto Rico Estación Experimental Agrícola. Boletín. Río Piedras, P. R.
- P. R. Sug. Man.** The Puerto Rico Sugar Manual. New Orleans, La.
- Pa. Agric. Expt. Sta. Bull.** Pennsylvania Agricultural Experiment Station. Bulletin. State College, Pa.
- Pa. St. Forest Sch. Res. Pap.** Pennsylvania State Forest School Research Paper. (E.S.R.)
- Pa. St. Hort. Assoc. News.** Pennsylvania State Horticultural Association News. State College, Pa.
- Pacific Pulp Paper Indust.** Pacific Pulp and Paper Industry. Seattle, Wash.
- Palestine J. Bot.** Palestine Journal of Botany [(J) Jerusalem series; (R) Rehovoth series].
- Palestine Soil Conserv. Bd. Bull.** Government of Palestine Soil Conservation Board Bulletin. Jerusalem.
- Pan Amer. Un. Agric. Ser. Pub.** Pan American Union. Agricultural Series Publications. Washington, D.C.
- Pedology.** Pedology (Pochvo-vedenie). Moscow.
- Peru Esta. Expt. Agric. La Molina Bol.** Estación Experimental Agrícola de La Molina. Boletín. Lima.
- Peru Esta. Expt. Agric. La Molina Circ.** Estación Experimental Agrícola de La Molina. Circular. Lima.
- Pflanzenbau.** Pflanzenbau. Monatsschrift für den gesamten Acker- und Pflanzenbau und das Pflanzenbauliche Versuchswesen. Leipzig.
- Phil. Mag.** The London, Edinburgh, and Dublin Philosophical Magazine and Journal of Science. London.
- Philipp. Agricst.** Philippine Agriculturist. Los Banos, P.I. Laguna, P.I.
- Philipp. J. Agric.** Philippine Journal of Agriculture. Manila, P.I.
- Phosphorsäure.** Die Phosphorsäure. Berlin.
- Phytopath.** Phytopathology. Lancaster, Pa.
- Phytopath. Ztschr.** Phytopathologische Zeitschrift. Berlin.
- Plant. Chron.** Planters' Chronicle. Coonoor, India.
- Plant Dis. Reprtr.** The Plant Disease Reporter. Washington, D.C.
- Plant Physiol.** Plant Physiology. Lancaster, Pa.
- Plant Virus Diseases and their Control, Trans. Conf. Plant Virus Diseases, Acad. Sci. U.S.S.R., Inst. Microbiol. (C.A.)**
- Planta.** Planta. Archiv für Wissenschaftliche Botanik. Berlin.
- Poona Agric. Coll. Mag.** Poona Agricultural College Magazine. Poona, India.
- Prakt. Bl. PflBau.** Praktische Blätter für Pflanzenbau und Pflanzenschutz. Freising, Germany.
- Prim. Udob. Zasush. Rayon. Yugo- Vost. S.S.S.R.** Priimenenie Udobreniy v Zasushivyykh Rayonakh Yugo-Vostoka S.S.S.R. (Application of Fertilizers in the Dry Regions of South-East U.S.S.R.) (C.A.)
- Priroda.** Priroda (Nature). Leningrad.
- Probl. Sovet. Pochvoved.** Problemy Sovetskogo Pochvovedeniya (Problems of Soviet Soil Science). Moscow-Leningrad.
- Proc. Agric. Soc. Trin. Tob.** Proceedings of the Agricultural Society of Trinidad and Tobago. Port of Spain.

# ABBREVIATIONS OF JOURNALS AND PERIODICALS

- Proc. Amer. Pomol. Soc.** Proceedings of the American Pomological Society. Madison, Wis.
- Proc. Amer. Sci. Cong.** Proceedings of the American Scientific Congress. Washington, D.C.
- Proc. Amer. Soc. Civil Engrs.** Proceedings of the American Society of Civil Engineers. New York.
- Proc. Amer. Soc. Hort. Sci.** Proceedings of the American Society for Horticultural Science. Geneva, N.Y.
- Proc. Amer. Soc. Sug. Beet Tech.** Proceedings American Society Sugar Beet Technologists. Longmont, Colo.
- Proc. Ann. Conf. Cuban Sug. Tech. Assoc.** Proceedings of the Annual Conference of the Cuban Sugar Technologists Association (Memoria de la Conferencia Anual de la Asociación de Técnicos Azucareros de Cuba). Havana.
- Proc. Ann. Cong. S. Afric. Sug. Tech. Assoc.** Proceedings of the Annual Congress of the South African Sugar Technologists' Association. Durban.
- Proc. Ann. Conv. Sug. Tech. Assoc. India.** Proceedings of the Annual Convention of the Sugar Technologists' Association of India. Cawnpore, India.
- Proc. Assoc. S. Agric. Workers.** Proceedings of the Annual Convention, Association of Southern Agricultural Workers. Atlanta, Ga.
- Proc. Conf. Middle East Agric. Devt.** The Proceedings of the Conference on Middle East Agricultural Development. Cairo.
- Proc. Fla. Acad. Sci.** Proceedings of the Florida Academy of Sciences. Tallahassee, Fla.
- Proc. Fla. St. Hort. Soc.** Proceedings of the Annual Meeting of Florida State Horticultural Society. De Land, Fla.
- Proc. Geol. Assoc.** Proceedings of the Geologists' Association. London.
- Proc. Highw. Res. Bd. Wash.** Proceedings of the Highway Research Board, National Research Council, National Academy of Sciences. Washington, D.C.
- Proc. Indian Acad. Sci.** Proceedings of the Indian Academy of Sciences. Bangalore.
- Proc. Indian Sci. Cong. Abs.** Proceedings of the Indian Science Congress. Abstracts. Calcutta.
- Proc. Indiana Acad. Sci.** Proceedings of the Indiana Academy of Science. Indianapolis, Ind.
- Proc. Iowa Acad. Sci.** Proceedings of the Iowa Academy of Science. Des Moines.
- Proc. Linn. Soc. N.S.W.** The Proceedings of the Linnean Society of New South Wales. Sydney.
- Proc. Natl. Acad. Sci. India.** Proceedings of the National Academy of Sciences, India. Allahabad.
- Proc. Natl. Acad. Sci. Wash.** Proceedings of the National Academy of Sciences. Washington, D.C.
- Proc. Natl. Inst. Sci. India.** Proceedings of the National Institute of Sciences of India. Calcutta.
- Proc. Natl. Joint Cttee. Fert. Appl.** Proceedings of the Annual Meeting of the National Joint Committee on Fertilizer Application.
- Proc. Nutr. Soc.** Proceedings of the Nutrition Society. Cambridge.

# ABBREVIATIONS OF JOURNALS AND PERIODICALS

- Proc. Ohio St. Hort. Soc.** Proceedings of the Ohio State Horticultural Society. Columbus, Ohio.
- Proc. Okla. Acad. Sci.** Proceedings of the Oklahoma Academy of Science. Norman, Okla.
- Proc. Pa. Acad. Sci.** Proceedings of the Pennsylvania Academy of Science. Harrisburg, Pa.
- Proc. Pacific Sci. Cong.** Proceedings of the Pacific Science Congress. Toronto.
- Proc. Phys. Soc.** The Proceedings of the Physical Society. London.
- Proc. Punjab Engng. Cong. Pap.** Proceedings of the Punjab Engineering Congress. Paper. Lahore.
- Proc. Roy. Irish Acad.** Proceedings of the Royal Irish Academy. Dublin.
- Proc. Roy. Phil. Soc. Glasgow.** Proceedings of the Royal Philosophical Society of Glasgow. Glasgow.
- Proc. Roy. Soc.** Proceedings of the Royal Society. London.
- Proc. Roy. Soc. Queensland.** Proceedings of the Royal Society of Queensland. Brisbane.
- Proc. Roy. Soc. Victoria.** Proceedings of the Royal Society of Victoria. Melbourne.
- Proc. S. Dak. Acad. Sci.** Proceedings of the South Dakota Academy of Science. Vermillion, S. Dak.
- Proc. S.-E. Pecan Grow. Assoc.** Proceedings of the Annual Convention of the South-Eastern Pecan Growers Association. Albany, Ga.
- Proc. Soc. Agric. Bact.** Proceedings of the Society of Agricultural Bacteriologists (Abstracts). Edinburgh.
- Proc. Soc. Biol. Chem. India.** Proceedings of the Society of Biological Chemists, India. Bangalore.
- Proc. Soil Sci. Soc. Amer.** Proceedings of the Soil Science Society of America. Morgantown, W. Va.
- Proc. Soil Sci. Soc. Florida.** Proceedings of the Soil Science Society of Florida. Gainesville, Fla.
- Proc. Utah Acad. Sci.** Proceedings of the Utah Academy of Sciences, Arts and Letters. Salt Lake City.
- Proc. Wash. St. Hort. Assoc.** Proceedings of the Annual Meeting of the Washington State Horticultural Association. Pullman, Wash.
- Prog. Farm. (Car.-Va. Ed.).** Progressive Farmer (various State Editions).
- Pub. Bot. Inst. Roy. Hung. Univ. Sopron.** Publications of the Botanical Institute of the Royal Hungarian University of Technical and Economic Sciences. Sopron, Hungary.
- Public Works N.Y.** Public Works. New York.
- Punjab Fruit J.** Punjab Fruit Journal. Lyallpur.
- Punjab Irrig. Res. Inst. Res. Pub.** Punjab Irrigation Research Institute. Research Publications. Lahore.
- Quart. J. Roy. Met. Soc.** Quarterly Journal of the Royal Meteorological Society. London.
- Queensland Agric. J.** Queensland Agricultural Journal. Brisbane.
- Queensland Bur. Sug. Expt. Sta. Tech. Commun.** Queensland Bureau of Sugar Experiment Stations. Technical Communication. Brisbane.

# ABBREVIATIONS OF JOURNALS AND PERIODICALS

- Queensland J. Agric. Sci.** The Queensland Journal of Agricultural Science. Brisbane.
- R.A.E.** The Review of Applied Entomology. Series A: Agricultural. London.
- R.A.M.** Review of Applied Mycology. Kew, England.
- R. I. Agric. Expt. Sta. Bull.** Agricultural Experiment Station of the Rhode Island State College. Bulletin. Kingston, R.I.
- R. I. Agric. Expt. Sta. Misc. Pub.** Agricultural Experiment Station of the Rhode Island State College. Miscellaneous Publication. Kingston, R.I.
- Rec. Trav. Chim. Pays-Bas.** Recueil des Travaux Chimiques des Pays-Bas et de la Belgique. Leiden.
- Reclam. Era.** The Reclamation Era. Washington, D.C.
- Rept. Acad. Sci. Ukrain. S.S.R. (Cl. Phys.-Chem. Math.).** Reports of the Academy of Sciences of the Ukrainian S.S.R. (Division of Physico-Chemical and Mathematical Sciences). (Dopovidi Akademii Nauk U.R.S.R.) Kiev.
- Rept. Hawaii. Sug. Tech.** Reports of the Hawaiian Sugar Technologist. Honolulu.
- Rept. Inst. Sci. Res. Manchoukuo.** Report of the Institute of Scientific Research, Manchoukuo. Tatsung Tachie, Hsinching, Manchoukuo.
- Rept. Natl. Resources Plan. Bd.** Report of the National Resources Planning Board. Washington, D.C.
- Rept. Waite Agric. Res. Inst.** Report of the Waite Agricultural Research Institute. Adelaide, S. Aust.
- Rev. Agric. Guatemala.** Revista Agrícola. Guatemala.
- Rev. Agric. Maurice.** Revue Agricole de l'Île Maurice. Port Louis, Mauritius.
- Rev. Agric. P. R.** Revista de Agricultura de Puerto Rico. San Juan, P. R.
- Rev. Agric. Piracicaba.** Revista de Agricultura. Piracicaba, Brazil.
- Rev. Agron. Lisboa.** Revista Agronómica. Lisbon.
- Rev. Argent. Agron.** Revista Argentina de Agronomía. Buenos Aires.
- Rev. B. A. P.** Revista Mensual B.A.P. Ferrocarril Buenos Aires al Pacífico. Buenos Aires.
- Rev. Brasil. Chim.** Revista Brasileira de Química (Ciência & Indústria). (Now Revista Brasileira de Química (Ciência & Indústria).) São Paulo.
- Rev. Brasil. Geog.** Revista Brasileira de Geografia. Rio de Janeiro.
- Rev. Brasil. Quím.** Revista Brasileira de Química (Ciência & Indústria). São Paulo.
- Rev. Cent. Estud. Ing. Quím. Univ. Sante Fé.** Revista del Centro de Estudiantes de Ingeniería Química de la Universidad Nacional del Litoral. Santa Fé, Argentina.
- Rev. Chim. Indust. Rio de J.** Revista de Química Industrial. Rio de Janeiro.
- Rev. Cienc. Peru.** Revista de Ciencias. Lima.
- Rev. D.N.A. Costa Rica.** Revista del Departamento Nacional de Agricultura. San Pedro de Montes de Oca, Costa Rica.
- Rev. Fac. Agron. B. Aires.** Revista de la Facultad de Agronomía y Veterinaria. Buenos Aires.

# ABBREVIATIONS OF JOURNALS AND PERIODICALS

- Rev. Fac. Agron. La Plata.** Revista de la Facultad de Agronomía y Veterinaria. La Plata.
- Rev. Fac. Agron. Univ. Montevideo.** Revista de la Facultad de Agronomía de la Universidad. Montevideo.
- Rev. Fac. Cienc. Quím. La Plata.** Revista de la Facultad de Ciencias Químicas. La Plata.
- Rev. Fac. Quím. Indust. Agríc. Univ. Santa Fé.** Revista de la Facultad de Química Industrial y Agrícola (Universidad Nacional del Litoral). Santa Fé, Argentina.
- Rev. Hort. Agric. Afr. N.** Revue Horticole et Agricole de l'Afrique du Nord. Algiers.
- Rev. Hort. Suisse.** Revue Horticole et Viticole de la Suisse Romande. Geneva.
- Rev. Indust. Agric. Tucumán.** Revista Industrial y Agrícola de Tucumán. Tucumán, Argentine.
- Rev. Inst. Café.** Revista do Instituto do Café. (Now Boletim da Superintendência dos Serviços do Café.) São Paulo, Brazil.
- Rev. Inst. Rech. Agron. Bulg.** Revue des Instituts de Recherches Agronomiques de Bulgarie. Sofia.
- Rev. Politéc.** Revista Politécnica. São Paulo, Brazil.
- Rhod. Agric. J.** Rhodesia Agricultural Journal. Salisbury.
- Rice J.** Rice Journal. New Orleans.
- Ricerca Sci. Roma.** La Ricerca Scientifica ed il Progresso Tecnico nell'Economia Nazionale. Rome.
- Riv. Biol.** Rivista di Biologia. Perugia, Italy.
- Rubber Res. Inst. Malaya Plant. Bull.** Rubber Research Institute of Malaya. Planters' Bulletin. Kuala Lumpur.
- Rubber Res. Inst. Malaya Plant. Man.** Rubber Research Institute of Malaya. Planting Manual. Kuala Lumpur.
- Rubber Res. Scheme (Ceylon) Adv. Circ.** Rubber Research Scheme (Ceylon). Advisory Circular. Colombo.
- Rubber Res. Scheme (Ceylon) Quart. Circ.** Rubber Research Scheme (Ceylon). Quarterly Circular. Colombo.
- S. Afric. J. Sci.** South African Journal of Science. Johannesburg.
- S. Afric. Mining Eng. J.** The South African Mining and Engineering Journal. Johannesburg.
- S. Afric. Sug. J.** South African Sugar Journal. Durban.
- S. Afric. Sug. Tech.** South African Sugar Technologists. Durban.
- S. Africa Dept. Agric. Bull.** Union of South Africa. Department of Agriculture and Forestry. Bulletin. Pretoria.
- S. Africa Dept. Agric. Bull. (Chem. Ser.).** Union of South Africa. Department of Agriculture and Forestry. Bulletin (Chemistry Series). Pretoria.
- S. Africa Dept. Agric. Sci. Bull.** Union of South Africa. Department of Agriculture and Forestry. Science Bulletin. Pretoria.
- S. Africa Dept. Agric. Sci. Bull. (Anim. Crop Prod. Ser.).** Union of South Africa. Department of Agriculture and Forestry. Science Bulletin (Animal and Crop Production Series). Pretoria.
- S. Africa Geol. Surv. Mem.** Union of South Africa. Geological Survey. Memoir. Pretoria.

# ABBREVIATIONS OF JOURNALS AND PERIODICALS

- S. Dak. Agric. Expt. Sta. Bull.** South Dakota Agricultural Experiment Station. Bulletin. Brookings.
- S. Forest Expt. Sta. Occ. Pap.** Southern Forest Experiment Station Occasional Paper. New Orleans, La.
- Sadovodstvo.** Sadovostvo (Gardening). Moscow.
- Sadovodstvo Ogor.** Sadovodstvo Ogornodnicestva (Hort. and Truck Garden). (Biol. Abs.)
- Sady i Ogorody.** (Orchards and Gardens). Moscow.
- Sborn. Čsl. Akad. Zeméd.** Sbornik Československé Akademie Zemědělské (Annals of the Czechoslovak Academy of Agriculture). Prague.
- Sborn. Masaryk. Akad. Práce.** Sbornik Masarykovy Akademie Práce (Collected Works of the Masaryk Academy of Work). Prague.
- Sborn. Nauch. Stat. Komsom. SoiuzNIKhl.** Sbornik Nauchnykh Statey Komsomol'tsev SoiuzNIKhl. Tashkent.
- Sborn. Nauch. Student. Rab. No. 8, Pochvoved.** (Pedology.)
- Sborn. Pam. W. R. Williams.** Sbornik Pamiaty Akad. W. R. Williams. (Akad. Nauk U.S.S.R.) Moscow-Leningrad.
- Sborn. Rab. Akad. Nauk B.S.S.R.** (C.A.)
- Sborn. Rab. Biol. Fiziol. Khlop.** (C.A.)
- Sborn. Rab. Cheliabinsk. S.-Kh. Opyt. Sta.** Sbornik Nauchno-Issledovatel'skikh Rabot Cheliabinskoi Sel'sko-Khoziastvennoi Opytnoi Stantsii (Collected Papers of the Cheliabinsk Agricultural Experiment Station). Cheliabinsk.
- Sborn. Rab. Dnepropetrovsk. S.-Kh. Inst.** (C.A.)
- Sborn. Rab. VNIS.** Sbornik Rabot Nauchno-Issledovatel'skogo Instituta Sakharnoi Promyshlennosti (Collection of Papers of the Sugar Research Institute). Moscow.
- Sch. Agric. Cambridge.** School of Agriculture. Cambridge.
- Schweiz. Arch. Angew. Wiss. Tech.** Schweizer Archiv für Angewandte Wissenschaft und Technik. Solothurn, Switzerland.
- Schweiz. Bauer.** (C.A.)
- Schweiz. Landw. Monatsh.** Schweizerische Landwirtschaftliche Monatshefte. Bern.
- Schweiz. Ztschr. Forstw.** Schweizerische Zeitschrift für Forstwesen. Bern.
- Schweiz. Ztschr. Obst- u. Weinb.** Schweizerische Zeitschrift für Obst- und Weinbau. Wädenswil.
- Sci. Agric.** Scientific Agriculture. Ottawa.
- Sci. Mo. New York.** The Scientific Monthly. New York.
- Sci. Proc. Roy. Dublin Soc.** Scientific Proceedings of the Royal Dublin Society. Dublin.
- Sci. Stud. Sug. Res. Inst. Moscow.** Principal Results of the Scientific Studies of the Sugar Research Institute, Moscow (Osnovnye Vychody Rabot Vsesoiuznogo Nauchno-Issledovatel'skogo Instituta Sakharnoi Promyshlennosti VNIS). Moscow.
- Science.** New York.
- Science and Culture.** Calcutta.
- Scot. J. Agric.** Scottish Journal of Agriculture. Edinburgh.
- SCS—ESR.** United States Department of Agriculture. Soil Conservation Service. Erosion Survey Reports. Washington, D.C.

# ABBREVIATIONS OF JOURNALS AND PERIODICALS

- CS—TP.** United States Department of Agriculture. Soil Conservation Service. Technical Publication. Washington, D. C.
- Seed World.** Chicago.
- Selekt. Semen.** Seleksiia i Semenovodstvo (Plant Breeding and Seed Growing). Moscow.
- Sel'khozglz.** Moscow.
- Siam Dept. Agric. Tech. Bull.** Siam Department of Agriculture and Fisheries. Technical Bulletin. Bangkok.
- Smithson. Instn. Ann. Rept.** Smithsonian Institution. Annual Report. Washington, D. C.
- Soil Conservation.** Washington, D. C.
- Soil Fert. Problems Cotton Res. Inst. Tashkent.** Central Station of Fertilizers and Soil Science. Cotton Research Institute (SoiuzNIKhl) Tashkent. Soil and Fertilizer Problems (Tsentral'naia Stantsia Udobreny i Agropokhovovedenia. Vsesoiuzny Nauchno - Issledovatel'sky Institut Khlopkovodstva (SoiuzNIKhl), Tashkent. Voprosy Fiziki, Khimii, Melioratsii Pochv i Udobrenia Khlopkchatnika). Tashkent.
- Soil Mem. Geol. Surv. Kiangsi.** Soil Memoirs of the Geological Survey of Kiangsi. Kiangsi, China.
- Soil Res.** Soil Research. Berlin.
- Soil Sci.** Soil Science. Baltimore, Md.
- Soils and Vegetation of the Far East** (Materialy po Rasstelnosti i Pochvam Dal'nego Vostoka).
- Sotsial. Sel'sk. Khoz.** Sotsialisticheskoe Sel'skoe Khoziasstvo (Socialistic Agriculture). Moscow.
- Sotsial. Sel'sk. Khoz. Uzbek.** Sotsialisticheskoe Sel'skoe Khoziasstvo Uzbekistana (Socialistic Uzbekistan Agriculture). Tashkent.
- Sotsial. Zern. Khoz.** Sotsialisticheskoe Zernovoe Khoziasstvo (Socialistic Grain Farming). Saratov.
- Sovet. Agron.** Sovetskaia Agronomiia (Soviet Agronomy). Moscow.
- Sovet. Bot.** Sovetskaia Botanika (Soviet Botany). Moscow.
- Sovet. Khlopok.** Sovetsky Khlopok (Soviet Cotton) Tashkent.
- Sovet. Subtrop.** Sovetskie Subtropiki (Soviet Subtropics). Moscow.
- Sovet. Vet.** (C.A.)
- Spirto-Vodoch. Prom.** Spirto-Vodochnaya Promyshlennost. Moscow.
- Spreckels Sug. Beet Bull.** (Sugar.)
- Storrs Agric. Expt. Sta. Bull.** Storrs Agricultural Experiment Station. Connecticut State College. Bulletin. Storrs, Conn.
- Strasse & Verkehr.** La Route et la Circulation Routière. Solothurn, Switzerland.
- Sug. Beet Bull.** Sugar Beet Bulletin. (F. a. S.)
- Sug. Beet J.** Sugar Beet Journal. Saginaw, Mich.
- Sug. Bull.** Sugar Bulletin. New Orleans, La.
- Sug. News.** Sugar News. Manila, P. I.
- Sugar.** Sugar (Including Facts about Sugar, The Planter and Sugar Manufacturer). Hoboken, N. J.
- Sugar Beet.** Ogden, Utah.
- Surveyor.** London.
- Sveklovich. Polevodstvo.** Sveklovichnoe Polevodstvo (Sugarbeet Husbandry). Moscow.
- Svensk Bot. Tidskr.** Svensk Botaniska Tidskrift. Stockholm.
- Svensk Frötidn.** Svensk Frötidning. Örebro.



# ABBREVIATIONS OF JOURNALS AND PERIODICALS

- Svensk Kem. Tidskr.** Svensk Kemisk Tidskrift. Stockholm.
- Svenska SkogsvFören. Tidskr.** Svenska Skogsvårdsföreningens Tidskrift. Stockholm.
- Svenska Vall- o. MosskFören. Kvartalsskr.** Svenska Vall- och Mosskulturföreningens Kvartalsskrift. (Formerly Svenska Mosskulturföreningens Tidskrift and Svenska Betes- och Vallföreningens Årsskrift.) Uppsala.
- Svenska Vall- o. MosskFören. Medd.** Svenska Vall- och Mosskulturföreningens Meddelanden. (Formerly Meddelanden från Svenska Betes- och Vallföreningen.) Uppsala.
- Sverig. Geol. Unders. Arsb.** Sveriges Geologiska Undersökning Årsbok. Stockholm.
- Sverig. Utsädesfören. Tidskr.** Sveriges Utsädesförenings Tidskrift. Svalöf.
- Symb. Bot. Upsaliens.** Symbolae Botanicae Upsalienses. Arbeten från Botaniska Institutionen i Uppsala. Uppsala.
- Tabac.** Le Tabac. Bulletin de Formation et du Documentation du Centre International du Tabac. Rome.
- Tabach. Prom.** Tabachnaia Promyshlennost (Tabak) (Tobacco Industry). Moscow.
- Tabak.** Der Tabak. Halbjahresschrift für Tabakanbau, Tabakverarbeitung, Tabak- und Tabakwarehandel. Berlin.
- Tasm. J. Agric.** Tasmanian Journal of Agriculture. Hobart.
- Tea Quart.** The Tea Quarterly. The Journal of the Tea Research Institute of Ceylon. St. Coombe, Talawakelle.
- Technika.** Budapest.
- Tectona.** Tectona. Boschbouwkundig Tijdschrift. Buitenzorg.
- Tek. Tid. Kemi.** Teknisk Tidskrift. Upplaga C: Kemi och Bergsvetenskap. Stockholm.
- Tekh.Kul.** Tekhnichni Kul'turi. (C.A.)
- Tenn. Agric. Expt. Sta. Bull.** Tennessee. Agricultural Experiment Station. Bulletin. Knoxville, Tenn.
- Tenn. Agric. Expt. Sta. Circ.** Tennessee Agricultural Experiment Station. Circular. Knoxville, Tenn.
- Tex. Agric. Expt. Sta. Bull.** Texas Agricultural Experiment Station. Bulletin. College Station, Texas.
- Tex. Agric. Expt. Sta. Circ.** Texas Agricultural Experiment Station. Circular. College Station, Texas.
- Tex. Agric. Expt. Sta. Prog. Rept.** Texas Agricultural Experiment Station, Progress Report. College Station, Tex.
- Tex. Pecan Grow. Assoc. Proc.** Texas Pecan Growers' Association. Proceedings. La Grange.
- Thal Sci. Bull.** Thai Science Bulletin. (Formerly Siam Science Bulletin.) Bangkok.
- Tharandt. Jahrb.** Tharandter Forstliches Jahrbuch. Berlin.
- Tidsskr. Kjemi Met.** (C.A.)
- Tidsskr. Landekon.** Tidsskrift for Landøkonomi. Copenhagen.
- Tidsskr. Norske Landbr.** Tidsskrift for det Norske Landbruk. Oslo.
- Tidsskr. Planteavl.** Tidsskrift for Planteavl. Copenhagen.
- Tidsskr. Skogbr.** Tidsskrift for Skogbruk. Oslo.
- Tijdschr. PZiekt.** Tijdschrift over Plantenziekten. Wageningen.

# ABBREVIATIONS OF JOURNALS AND PERIODICALS

- Tocklai Expt. Sta. Memo.** Indian Tea Association. Tocklai Experimental Station. Memorandum. Calcutta.
- Torf. Udob.** Torfianie Udobrenia, Sbornik (Trudov) Rabot Tsentral. Torfianoi. Opyt. Stantsii. (C.A.)
- Trans. Amer. Geophys. Un.** Transactions of the American Geophysical Union. Annual Meeting. Washington, D.C.
- Trans. Anthrac. Conf.** Transactions of the Annual Anthracite Conference of Lehigh University. New York.
- Trans. Bose Res. Inst.** Transactions of the Bose Research Institute. Calcutta.
- Trans. Bot. Soc. Edinburgh.** Transactions and Proceedings of the Botanical Society of Edinburgh. Edinburgh.
- Trans. Brit. Mycol. Soc.** Transactions of the British Mycological Society. London.
- Trans. Dokuchaev Inst.** Transactions of the Dokuchaev Soil Institute (Trudy Pochvennogo Instituta imeni V.V. Dokuchaeva). Leningrad.
- Trans. Highl. Agric. Soc. Scot.** Transactions of the Highland and Agricultural Society of Scotland. Edinburgh.
- Trans. Ill. St. Acad. Sci.** Transactions of the Illinois State Academy of Science. Springfield, Ill.
- Trans. Ill. St. Hort. Soc.** Transactions of the Illinois State Horticultural Society. Kell, Ill.
- Trans. Int. Soc. Soil Sci. Comm.** Transactions of the International Society of Soil Science. Commission.
- Trans. Iowa St. Hort. Soc.** Transactions of the Iowa State Horticultural Society. Des Moines, Ia.
- Trans. Kans. Acad. Sci.** Transactions of the Kansas Academy of Science. Manhattan, Kans.
- Trans. Min. Proc. S. Afric. Soc. Civ. Engrs.** Transactions of the Minutes of Proceedings of the South African Society of Civil Engineers. Cape Town.
- Trans. Peninsula Hort. Soc.** Transaction of the Peninsula Horticultural Society. Dover, Del.
- Trans. Roy. Soc. Canada.** Transactions of the Royal Society of Canada. [Section III, Chemical, Mathematical, and Physical Sciences; Section IV, Geological Sciences including Mineralogy; Section V, Biological Sciences.] Ottawa.
- Trans. Roy. Soc. Edinburgh.** Transactions of the Royal Society of Edinburgh. Edinburgh.
- Trans. Roy. Soc. N.Z.** Transactions and Proceedings of the Royal Society of New Zealand. Wellington.
- Trans. Roy. Soc. S. Aust.** Transactions of the Royal Society of South Australia. Adelaide.
- Trans. Tex. Acad. Sci.** Transactions of the Texas Academy of Science. Austin.
- Trans. Wis. Acad. Sci.** Transactions of the Wisconsin Academy of Sciences, Arts and Letters. Madison.
- Trin. Sug.-Cane Investg. Cttee. Ann. Rept.** The Sugar-Cane Investigation Committee, Trinidad. Annual Report. Port-of-Spain.
- Trin. Tob. Dept. Agric.** Trinidad and Tobago Department of Agriculture. Port-of-Spain.

# ABBREVIATIONS OF JOURNALS AND PERIODICALS

- Trop. Agric. Trin.** Tropical Agriculture. The Journal of the Imperial College of Agriculture. St. Augustine, Trinidad.
- Trop. Agricst.** Tropical Agriculturist. The Agricultural Journal of Ceylon. Peradeniya.
- Tropenpflanzer.** Der Tropenpflanzer. Berlin.
- Trudi Inst. Sotsial Zemlerob.** Trudi Naukovo-Doslidnogo Institutu Sotsialistichnogo Zemlerobstva (Transactions of the Scientific Research Institute of Socialistic Agriculture).
- Trudy Akad. Nauk BSSR.** (C.A.)
- Trudy Gor'k. S.-Kh. Inst.** Trudy Gor'kogo Gosudarstvennogo Selskogo-Khoziastvennogo Instituta (Transactions of the Gorki State Agricultural Institute).
- Trudy Inst. Hydrotekh.** Trudy Instituta Hydrotekhniki i Melioratsii (Transactions of the Institute of Hydrotechnique and Reclamation). Moscow.
- Trudy Inst. Pol. Zemled.** Trudy Nauch.-Issledovatel. Inst. Poliarnogo Zemledelia, Zhivotnovodstva etc. (Transactions of the Institute of Polar Agriculture, Animal Husbandry etc.). (C.A.)
- Trudy Inst. Sever. Zern. Khoz.** Trudy Instituta Severnogo Zernovogo Khoziastva i Zernobobovykh Kultur (Transactions of the Institute of Northern Grain Husbandry and Leguminous Seed Crops).
- Trudy Kazakh. Inst. Zemled.** Trudy Kazakhskogo Nauchno-Issledovatel'skogo Instituta Zemledelia. Agropochhovedenie i Agrokhimia (Transactions of the Kazakh Institute of Agriculture, Soil Science and Agro-Chemistry). Alma-Ata, U.S.S.R.
- Trudy Kol. Bazy Akad. Nauk S.S.S.R.** (C.A.)
- Trudy Leningr. Torf.** Trudy Leningradskogo Torfianogo Oporного Punkta (Transactions of the Leningrad Peat Substation).
- Trudy Lesotek. Akad. Kirova.** Trudy Lesotekhnicheskoi Akademii im. S. M. Kirova (Mitteilungen der Kirov Forsttechnischen Akademie). Leningrad.
- Trudy LOVIUAA.** Trudy Leningradskogo Otdelenia Vsesoiuznogo Nauchno-Issledovatel'skogo Instituta Udobreny, Agrotekhniki i Agropochhovedenia imeni Gedroitsa (Transactions of the Leningrad Department of the Gedroiz Institute of Fertilizers and Soil Science). Leningrad.
- Trudy Nauch. Inst. Udob.** Trudy Nauchnogo Instituta po Udobreniam i Insektofungitsidam imeni Ia.V. Samoilova (Transactions of the Samoilov Scientific Institute of Fertilizers and Insectofungicides). Moscow.
- Trudy Omsk. S.-Kh. Inst.** Trudy Omskogo Selsko-Khoziastvennogo Instituta imeni S. M. Kirova (Transactions of the Omsk Agricultural Kirov Institute). Omsk.
- Trudy Perm. S.-Kh. Inst.** Trudy Permskogo Selsko-Khoziastvennogo Instituta (Transactions of the Perm Agricultural Institute). Perm.
- Trudy Rostov. Obl. Biol. Obshch.** (Pedology.)
- Trudy Saratov. S.-Kh. Inst.** Trudy Saratovskogo Selsko-Khoziastvennogo Instituta (Transactions of the Saratov Agricultural Institute). Saratov.
- Trudy TSKhA.** (C.A.)

# ABBREVIATIONS OF JOURNALS AND PERIODICALS

- Trudy Vologod. S.-Kh. Inst.** Trudy Vologodskogo Selskogo Khoziastvennogo Instituta (Transactions of the Vologda Agricultural Institute).
- Trudy Zashch. Rast.** Trudy po Zashchite Rastenii (Bulletin of Plant Protection). Leningrad.
- Trudy Zonal. Inst. Zern. Khoz. Rayon. Nechernozem. Polosy Vopr. Agrotekh.** (C.A.)
- Tucumán Esta. Expt. Agric. Bol.** Tucumán Estación Experimental Agrícola. Boletín. Tucumán, Argentine.
- Tucumán Esta. Expt. Agric. Circ.** Tucumán Estación Experimental Agrícola. Circular. Tucumán, Argentine.
- Turf Culture.** U.S. Golf Association, Green Section, Benjamin Franklyn Station. Washington, D.C.
- U.S. Bur. Mines Rept. Investg.** United States Department of the Interior. Bureau of Mines. Report of Investigations. Washington, D.C.
- U.S.D.A. Bibl. Agric.** United States Department of Agriculture. Bibliography of Agriculture. Washington, D.C.
- U.S.D.A. Bibl. Bull.** United States Department of Agriculture. Bibliographical Bulletin. Washington, D.C.
- U.S.D.A. Bur. Agric. Econ., Econ. Libr. List.** United States Department of Agriculture. Bureau of Agricultural Economics. Economic Library List. Washington, D.C.
- U.S.D.A. Bur. Agric. Econ. F. M.** United States Department of Agriculture. Bureau of Agricultural Economics. Farm Management. Washington, D.C.
- U.S.D.A. Bur. Pl. Indust.** United States Department of Agriculture. Bureau of Plant Industry. Washington, D.C.
- U.S.D.A. Circ.** United States Department of Agriculture. Circular. Washington, D.C.
- U.S.D.A. Farm. Bull.** United States Department of Agriculture. Farmers' Bulletin. Washington, D.C.
- U.S.D.A. Hydrol. Bull.** United States Department of Agriculture. Hydrologic Bulletin. Washington, D.C.
- U.S.D.A. Leaflet.** United States Department of Agriculture. Leaflet. Washington, D.C.
- U.S.D.A. Misc. Pub.** United States Department of Agriculture. Miscellaneous Publication. Washington, D.C.
- U.S.D.A. Off. Foreign Agric. Relat.** United States Department of Agriculture. Office of Foreign Agricultural Relations. Washington, D.C.
- U.S.D.A. Off. Foreign Agric. Relat. Foreign Agric. Rept.** United States Department of Agriculture. Office of Foreign Agricultural Relations. Foreign Agricultural Report. Washington, D.C.
- U.S.D.A. S.C.S. Misc. Pub.** United States Department of Agriculture. Soil Conservation Service. Miscellaneous Publication. Washington, D.C.
- U.S.D.A. Soil Conserv. Serv.** United States Department of Agriculture. Soil Conservation Service. Washington, D.C.
- U.S.D.A. Soil Conserv. Serv. Bibliogr.** United States Department of Agriculture. Soil Conservation Service. Bibliography. Washington, D.C.

# ABBREVIATIONS OF JOURNALS AND PERIODICALS

- U.S.D.A. Soil Conserv. Serv. Erosion Surv.** United States Department of Agriculture. Soil Conservation Service. Erosion Survey. Washington, D.C.
- U.S.D.A. Soil Conserv. Serv. Reg. Bull.** United States Department of Agriculture. Soil Conservation Service. Regional Bulletin. Washington, D.C.
- U.S.D.A. Tech. Bull.** United States Department of Agriculture. Technical Bulletin. Washington, D.C.
- U.S. Dept. Commerce Natl. Bur. Stand. Letter Circ.** United States Department of Commerce. National Bureau of Standards. Letter Circular. Washington, D.C.
- U.S. Geol. Surv. Bull.** United States Department of the Interior. Geological Survey Bulletin. Washington, D.C.
- U.S. Natl. Resour. Pl. Bd. Land Cttee.** United States National Resources Planning Board. Land Committee. Washington, D.C.
- Uchen. Zap. Kazan. Gosud. Univ.** Uchenye Zapiski Kazanskogo Gosudarstvennogo Universiteta imeni V.I. Ulyanova-Lenina (Scientific Memoirs of the University of Kazan). Kazan.
- Uchen. Zap. Leningr. Gosud. Univ. Ser. Geol.-Pochv. Nauk.** Uchenye Zapiski Leningradskogo Gosudarstvennogo Universiteta. Seria Geologicheskoy - Pochvennykh Nauk (Scientific Memoirs of the University of Leningrad. Series of Geological Soil Science). Leningrad.
- Uchen. Zap. Mosk. Gosud. Univ.** Uchenye Zapiski Moskovskogo Gosudarstvennogo Universiteta (Scientific Memoirs of the University of Moscow). Moscow.
- Uchen. Zap. Saratov. Gosud. Univ.** Uchenye Zapiski Saratovskogo Gosudarstvennogo Universiteta imeni N. G. Chernyshevskogo (Scientific Memoirs of the University of Saratov). Saratov.
- Umschau.** Frankfurt a. M. and Leipzig.
- Underwriters' Labs., Inc. Bull. Res.** Underwriters' Laboratories Inc. Bulletin of Research. Chicago, Ill.
- Univ. Calif. Pub. Bot.** University of California Publications in Botany. Berkeley, Calif.
- Univ. Mich. Dept. Civil Engng.** University of Michigan. Department of Civil Engineering. Ann Arbor, Mich.
- Univ. Microfilm Pub.** Universities Microfilm Publication. Ann Arbor, Mich.
- Univ. Queensland Pap. Dept. Geol.** University of Queensland Papers. Department of Geology. Brisbane.
- Univ. Saskatchewan Agric. Ext. Bull.** University of Saskatchewan. College of Agriculture. Agricultural Extension Bulletin. Saskatchewan.
- Univ. Téc. Lisboa.** Universidade Técnica de Lisboa. Lisbon.
- Utah Agric. Expt. Sta. Bull.** Utah Agricultural Experiment Station. Bulletin. Logan, Utah.
- Utah Agric. Expt. Sta. Circ.** Utah Agricultural Experiment Station. Circular. Logan, Utah.
- Va. Agric. Expt. Sta. Bull.** Virginia Agricultural Experiment Station. Bulletin. Blacksburg, Va.
- Va. Agric. Expt. Sta. Multig. Rept.** (E.S.R.)

# ABBREVIATIONS OF JOURNALS AND PERIODICALS

- la. Agric. Expt. Sta. Tech. Bull.** Virginia Agricultural Experiment Station. Technical Bulletin. Blacksburg, Va.
- la. Truck Expt. Sta. Bull.** Virginia Truck Experiment Station. Bulletin. Norfolk, Va.
- lalt. Maatalousk. Julk.** Valtion Maatalouskoetöiminnan Julkaisuja. Helsinki.
- /ASKhNIL Sekts. Agrokhim. Izvestk. Pochv Mat. Soveshech.** VASKhNIL Sektsia Agrokhimii, Izvestkovanie Pochv, Materialy Soveshchaniia (VASKhNIL, Agrochemical Section. Liming Soils, Materials of the Conference). Moscow.
- Växtskyddsnotiser.** Plant Protection Notes. Statens Växtskyddanstalt. [Stockholm]
- Versl. Rijkslandb.Proefsta. Groningen.** Verslagen van Landbouwkundige Onderzoekingen, Rijkslandbouwproefstation te Groningen. The Hague.
- Versl. Vergad. Vereen. Proefsta. Personeel.** Verslag van de Vergadering van de Vereniging van Proefstation Personeel. 25th-Buitenzorg.
- věst. Čsl. Akad. Zeměd.** Věstník Československé Akademie Zemědělské (Bulletin of the Czechoslovak Academy of Agriculture). Prague.
- Vest. S.-Kh. Nauk. Agrotekh.** Vestnik Selsko-Khoziastvennoi Nauki. Agrotekhnika. Moscow.
- Vest. S.-Kh. Nauk. Kormodob.** Vestnik Selsko-Khoziastvennoi Nauki. Kormodobyvanie. Moscow.
- Vest. S.-Kh. Nauk. Ovosh. Kartof.** Vestnik Selsko-Khoziastvennoi Nauki. Ovo-
- shedovostvo i Kartofel. Moscow.
- Vest. S.-Kh. Nauk. Plod.-Jagodn. Kult.** Vestnik Selsko-Khoziastvennoi Nauki. Plodovo-Jagodnye Kultury. Moscow.
- Vin. Obz.** Vinařský Obzor (Wine Industry Review). Brno.
- VITIM.** Vsesoiuzny Nauchno-Issledovatel'sky Institut Tabachnoi i Makhorochnoi Promyshlennosti imeni A.I. Mikoiana VITIM (All-Union Scientific Institute of the Tobacco and Makhorka Industry). Krasnodar.
- VIUAA.** Vsesoiuzny Institut Udobreny Agrotekhniki i Agropochvovedenia imeni Gedroitsa (Gedroiz Institute of Fertilizers and Soil Science). Moscow.
- Vodosnab. Sanit. Tekh.** Vodosnabzhenie i Sanitarnia Tekhnika (Water Supply and Sanitation Technology). Moscow.
- Vorratspfl. Lebensm.Forsch.** Vorratspflege und Lebensmittelforschung. Neudamm and Berlin.
- Vt. Agric. Expt. Sta. Bull.** Vermont Agricultural Experiment Station. Bulletin. Burlington, Vt.
- Vt. Agric. Expt. Sta. Pamph.** Vermont Agricultural Experiment Station. Pamphlet. Burlington, Vt.
- W. Afric. Agric. Conf.** West African Agricultural Conference.
- W. China Border Res. Soc. J.** West China Border Research Society Journal. Chengtu.
- W. Va. Agric. Expt. Sta. Bull.** West Virginia Agricultural Experiment Station. Bulletin. Morgantown, W. Va.

# ABBREVIATIONS OF JOURNALS AND PERIODICALS

- W. Va. Agric. Expt. Sta. Circ.** West Virginia Agricultural Experiment Station. Circular. Morgantown, W. Va.
- War Food Prod. Adv. Bull.** Aberystwyth. War Food Production Advisory Bulletin. University College of Wales. Aberystwyth.
- Wash. Agric. Expt. Sta. Bull.** State College of Washington. Agricultural Experiment Station. Bulletin. Pullman, Wash.
- Wash. Agric. Expt. Sta. Pop. Bull.** State College of Washington. Agricultural Experiment Station. Popular Bulletin. Pullman, Wash.
- Wass. u. Abwass.** Wasser und Abwasser. Berlin.
- Water Den Haag.** The Hague.
- Water Works and Sewerage.** Chicago.
- Wbl. Landesbauernsch. Mecklenburg.** (Herb. Abs.)
- Weidew. u. Futterbau.** Weidewirtschaft und Futterbau. Hannover.
- Wein u. Rebe.** Wein und Rebe. Illustrierte Monatshefte für Kellerwirtschaft und Weinbau. Mainz, Germany.
- Welsh J. Agric.** Welsh Journal of Agriculture. Cardiff.
- Wien. Landw. Ztg.** Wiener Landwirtschaftliche Zeitung. Vienna.
- Wis. Agric. Expt. Sta. Bull.** Agricultural Experiment Station of the University of Wisconsin. Bulletin. Madison, Wis.
- Wis. Agric. Expt. Sta. Res. Bull.** Agricultural Experiment Station of the University of Wisconsin. Research Bulletin. Madison, Wis.
- Wis. Univ. Ext. Serv. Coll. Agric. Circ.** Wisconsin University. Extension Service of the College of Agriculture. Circular. Madison, Wis.
- Worcs. Agric. Chron.** Worcestershire County Council. Agricultural Quarterly Chronicle. Worcester.
- Wyo. Agric. Expt. Sta. Bull.** Wyoming University. Agricultural Experiment Station. Bulletin. Laramie, Wyo.
- Yale Univ. Sch. Forestry Bull.** Yale University. School of Forestry. Bulletin. New Haven.
- Yarovizatsia.** Yarovization. Odessa.
- Young Ceylon, Coconut Ann.** Young Ceylon. Coconut Annual.
- Zap. Kharkov. Ord. Trudov. Kras. Znam. S.-Kh. Inst.** Zapiski Kharkovskogo Orden Trudogo Krasnogo Znameni Sel'skokhoziaistvennogo Instituta (Memoirs of the Kharkov Order of the Worker Red Sign of the Agricultural Institute).
- Zap. Kharkov. S.-Kh. Inst.** Zapiski Kharkovskogo Selskokhoziaistvennogo Instituta (Memoirs of the Kharkov Agricultural Institute). Kharkov.
- Zap. Leningr. S.-Kh. Inst.** Zapiski Leningradskogo Selskokhoziaistvennogo Instituta (Memoirs of the Leningrad Agricultural Institute). Leningrad.
- Zap. Miner. Obsh.** Zapiski Vserossiiskogo Mineralogicheskogo Obshchestva (Mémoires de la Société Russe de Minéralogie). Moscow.
- Zap. Voronezh. S.-Kh. Inst.** Zapiski Voronezhskogo Selskokhoziaistvennogo Instituta (Memoirs of the Voronezh Agricultural Institute).

# ABBREVIATIONS OF JOURNALS AND PERIODICALS

- Zavod. Lab.** Zavodskaja Laboratoriya (Factory Laboratory). Moscow.
- Zbl. Bakt.** Zentralblatt für Bakteriologie, Parasitenkunde und Infektionskrankheiten. II. Allgemeine, Landwirtschaftliche - technologische Nahrungsmittel-Bakteriologie und Mykologie. Jena.
- Zeméd. Arch.** Zemédělsky Archiv. Prague.
- Zh. Inst. Bot. Ukrain. Akad. Nauk.** Zhurnal Institutu Botaniki Ukrain. Akademii Nauk (Journal of the Institute of Botany of the Academy of Science of the Ukraine). Kiev.
- Zh. Khim. Prom.** Zhurnal Khimicheskoi Promyshlennosti (Journal of Chemical Industry). Moscow.
- Zh. Prikl. Khim.** Zhurnal Prikladnoi Khimii (Journal of Applied Chemistry). Leningrad.
- Zool. Zh.** Zoologicheskyy Zhurnal. Moscow.
- Ztschr. Anal. Chem.** Zeitschrift für Analytische Chemie. Berlin.
- Ztschr. Forst- u. Jagdw.** Zeitschrift für Forst- und Jagdwesen. Berlin.
- Ztschr. Gesam. Getreidew.** Zeitschrift für das Gesamte Getreide-, Mühlen-, und Bäckereiwesen. Berlin.
- Ztschr. PflKrank. PflSchutz.** Zeitschrift für Pflanzenkrankheiten (Pflanzenpathologie) und Pflanzenschutz. Stuttgart.
- Ztschr. Prakt. Geol.** Zeitschrift für Praktische Geologie. Berlin.
- Ztschr. Spiritusindust.** Zeitschrift für Spiritusindustrie. Zeitschrift für Stärke- und Trocknungsindustrie. Berlin.
- Ztschr. Weltforstw.** Zeitschrift für Weltforstwirtschaft. Berlin.
- Ztschr. Wirtschaftsgr. Zuckerindust.** Zeitschrift der Wirtschaftsgruppe Zuckerindustrie. Berlin.
- Ztschr. Zuckerindust. Čsl.** Zeitschrift für die Zuckerindustrie der Čechoslovakischen Republik. Prague.
- Zuckerrübenbau.** Hannover





## AUTHOR INDEX

### A

- Aaltonen, V. T., 118, 119, 363  
 Aamissepp, I., 351  
 Aamodt, E., 90  
 Aarnio, B., 119, 363  
 Abalos, R., 398  
 Abell, M. E., 385  
 Åberg, E., 165  
 Abitbol, J., 91, 157  
 Ableiter, J. K., 118  
 Acerete Lavilla, A., 361  
 Acharya, C. N., 211, 214, 219, 220  
 Ackerman, F. G., 113  
 Acock, A. M., 97, 404  
 Adair, C. R., 244  
 Adam, D. B., 279  
 Adams, F., 276  
 Adams, J. E., 141, 175, 278  
 Adams, J. R., 174, 207  
 Adams, W. E., 17  
 Adamson, A. M., 230  
 Adati, M., 366  
 Aderikhin, P. G., 42  
 Afanasiev, M. M., 292  
 Afanasieva, A. L., 151  
 Agababjan, S. M., 248  
 Agati, J. A., 398  
 Ageev, I. A., 308  
 Ahad, A., 276  
 Ahlgren, G. H., 184, 261  
 Ahlgren, H. L., 249  
 Ahlström, B., 247  
 Ahmad, N., 275  
 Aikman, J. M., 132, 169, 317, 389  
 Aivarzhi, F., 146  
 Åkerman, A., 363  
 Akhaury, B. P., 366  
 Akimochkina, T. A., 300  
 Akimtsev, V. V., 34  
 Akulova, T. A., 126  
 Alalykin, V. V., 101  
 Al'banov, D., 371  
 Albareda, J. M., 19, 364  
 Alben, A. O., 45, 323  
 Albert, A. R., 339  
 Albert, R., 170, 191  
 Alberts, H. W., 382  
 Albrecht, H. R., 198, 213, 263  
 Albrecht, W. A., 33, 37, 45, 53, 55, 61, 67, 106, 114, 128, 149, 154, 158, 159, 175, 177, 179, 190, 265, 273  
 Albright, W. D., 155  
 Alderfer, R. B., 104, 110, 113, 165, 217  
 Aldrich, D. G., 26  
 Aldrich, W. W., 108, 316, 324  
 Aleem, S. A., 48, 50  
 Aleksandrova, L. N., 65  
 Alekseev, E. K., 121  
 Alekseeva, E. N., 288  
 Aleshin, S. N., 61, 110  
 Alexander, L. T., 20, 26, 27, 28  
 Ali-Zade, M., 147  
 Allan, F. E., 297  
 Allan, J. A., 378, 379  
 Allaway, W. H., 55  
 Allen, E. F., 293  
 Allen, H. R., 185  
 Allen, L. A., 146  
 Allen, R. C., 352, 353  
 Allen, R. E., 164  
 Allison, F. E., 49, 145, 147, 151, 154, 258  
 Allison, L. E., 47, 73  
 Allison, P. A., 373  
 Allison, R. V., 23, 55, 386  
 Allnut, R. B., 375  
 Allo, A. V., 399  
 Allred, B. W., 392  
 Allyn, R. B., 88, 98  
 Almeida, J. Marques de, 132  
 Alov, A. S., 122, 186, 238  
 Alpat'ev, A. M., 173  
 Alper, P., 82

# AUTHOR INDEX

- Alson, P. W., 89
- Altan, F., 24, 30, 74, 108, 162, 177, 235, 270, 271
- Altpeter, L. S., 132
- Alvarez, A. S., 44
- Alvarino, J. E., 285
- Alves, J. A., 89
- Alway, F. J., 180, 199
- Amediek, J., 165
- Amlong, H. U., 287
- Amos, J., 326
- Amstein, W. G., 392
- Anand, P., 132
- Ancheta, S. T., 138
- Ancizar-Sordo, J., 396
- Anderson, A. B. C., 87, 88, 89, 100, 101
- Anderson, A. J., 182, 223, 246, 247
- Anderson, D., 161
- Anderson, D. A., 152
- Anderson, J. A., 236, 378
- Anderson, H. O., 390
- Anderson, K. L., 256, 264
- Anderson, M. S., 66, 183
- Anderson, P. J., 296
- Anderson, W. S., 267, 274, 347
- Andreeva, Z. F., 202
- Andrés, J. A., 35, 218, 264
- Andrew, R. L., 205
- Andrewartha, H. G., 137
- Andrews, F. S., 186
- Andrews, F. W., 226
- Andrews, J. S., 34, 137
- Andrews, L. K., 335
- Andrews, W. B., 148, 196, 199
- Andrianov, M. I., 228
- Andrianov, P. I., 100, 106, 107
- Anet, H., 223
- Angell, H. R., 239
- Anhoury, J., 372
- Anker-Kasmussen, S., 220
- Annand, P. N., 229
- Anthony, J. L., 185, 276
- Anthony, R. D., 106, 314, 317
- Anthony, W. G., 328
- Antipov-Karataev, I. N., 24, 28, 33, 40, 85, 123, 173, 288
- Antonova, T. N., 65
- Antykov, A. Ya., 289
- Aoki, M., 243
- Aomine, S., 244
- Appleman, M. D., 148
- Apte, V. N., 69
- Aquino, D. I., 36, 138
- Araki, M., 366
- Arany, A., 39
- Arber, M. A., 382
- Arbuzov, I., 57
- Arceneaux, G., 226, 287
- Archibald, E., 182
- Archibald, E. S., 378
- Ardenne, M. von, 26
- Arena, A., 19, 87, 396, 397
- Arend, J. L., 104, 106
- Arenz, B., 177, 178, 179, 181, 224, 233, 235, 240, 242, 261, 267
- Ark, P. A., 355
- Arkhangel'sky, N. V., 25
- Armiger, W. H., 204
- Armstrong, J. M., 166
- Armstrong, W. D., 328
- Arnd, T., 74
- Arnold, H. C., 198, 263, 377
- Arnon, D. I., 162, 176, 183, 348
- Arny, A. C., 163
- Aronovitch, I., 246, 370
- Arrazola, J. M., 264
- Arrhenius, A., 45
- Arthur, J. I., 37
- Arzt, T., 89
- Asana, R. D., 275
- Ascham, L., 267
- Asdonk, T., 183, 253, 272, 290
- Ashby, A. W., 358
- Ashby, E., 133
- Ashby, M., 305
- Ashmore, S., 194
- Ashton, W. M., 233
- Ashworth, M. R. F., 128, 142
- Askalonov, V. V., 23
- Askew, H. O., 205, 295, 316
- Askinazi, D. L., 46
- Aslander, A., 201, 243
- Astapov, S. V., 92
- Atkins, I. M., 388
- Atkins, O. A., 138
- Atkinson, C. H., 384
- Atkinson, H. J., 24, 64, 92, 95, 326
- Atwater, C. G., 223
- Auerochs, G., 334
- Augustine, M. T., 105
- Auluck, F. C., 89
- Aurangabadkar, R. K., 127

# AUTHOR INDEX

- asterweil, G., 84
  - ustin, W. W., 262
  - aten, J. T., 331, 332, 341
  - agustinnik, A. I., 31
  - aley, J. H., 35
  - avar, V. R., 275
  - avers, A. D., 101
  - aylen, D., 132, 135, 169, 377
  - ayres, A. S., 53, 404
  - ayyengar, G. N. R., 164, 165, 367
  - yyar, M. A. S., 164, 165
  - yyar, V. R., 278
  - zar, E., 61, 130
  - zevedo, C., 395
  - zhigoev, P. K., 290
  - znarez, M., 260
- B
- abe, E., 204
  - abich, P. D., 41
  - ablot, L. E., 91
  - achér, I., 195
  - acher, T., 348
  - acon, C. W., 293
  - aden, W., 23, 104
  - ader, B., 254
  - adoux, H., 138
  - deyertz, F. P., 319
  - agchi, S. N., 29, 30
  - agdasarashvili, Z. G., 330
  - aghat, M., 372
  - ahrt, G. M., 321
  - aig, M. M., 366
  - ailey, E. H., 35, 36
  - ailey, G. L., 369
  - ailey, J. S., 327, 385
  - ailey, R. W., 137
  - ailey, T. A., 54
  - ain, F. M., 197, 321, 324
  - ain, H. F., 329
  - air, R. A., 90
  - aker, C. E., 161, 163
  - aker, F. E., 230
  - aker, G. O., 39, 246
  - aker, M. S., 382
  - akhareva, Z. I., 145
  - akhulin, M. D., 23, 170, 217
  - akke, A. L., 227
  - al, D. V., 75, 127, 367
  - ălănescu, S., 50
  - Bald, J. G., 400
  - Baldrati, I., 372
  - Baldwin, J. G., 47, 401, 402
  - Bale, W. F., 202
  - Balks, R., 55, 180, 222
  - Ball, R. S., 306
  - Ballantyne, J. P. S., 379
  - Ballard, S. S., 178, 286
  - Ballenegger, R., 102
  - Ballu, T., 19
  - Bally, W., 135, 244, 363
  - Bamberg, 17
  - Bannerjee, S., 30
  - Bär, A. L. S., 284
  - Bär, K., 355
  - Baranov, M., 195
  - Baranov, V. I., 59, 181
  - Barbosa, C., 294
  - Barinova, R. A., 176, 238
  - Barkan, Ya. G., 36
  - Barker, A., 171
  - Barker, H. A., 139
  - Barker, H. D., 70
  - Barnes, B. F., 165
  - Barnes, E. E., 219
  - Barnes, M. R., 148
  - Barnett, R. J., 392
  - Barr, H. T., 171
  - Barre, R. C., 134
  - Barrett, W. H., 87
  - Barreto, A., 394
  - Barros, F., 242
  - Bartels, L. C., 222
  - Bartels, R., 150
  - Barthel, C., 209
  - Bartholdi, W. L., 342
  - Bartholomew, E. T., 324
  - Bartholomew, W. V., 65, 83
  - Barton, T. F., 379
  - Bartram, H., 129, 217, 218, 358
  - Bartrum, M. P., 249
  - Basile, D. G., 360
  - Basov, G. F., 335
  - Bass, T. C., 384
  - Bastisse, E., 43, 51
  - Basu, J. K., 65, 113, 283
  - Basu, K. L., 216
  - Basuraychaudhuri, P. K., 125, 126
  - Batchelor, H. W., 53, 211
  - Batchelor, L. D., 321
  - Bateman, H. P., 19
  - Baten, W. D., 70

# AUTHOR INDEX

- Bates, G. H., 232, 356, 357
- Bathurst, A. C., 319
- Batjer, L. P., 311, 313, 314, 315
- Batson, D. M., 92
- Batson, F. S., 354
- Batten, E. T., 324
- Baturin, V. P., 90
- Bauer, E. E., 86
- Bauer, F. C., 128, 195
- Bauer, K. H., 299
- Bauman, A., 170, 191
- Baumann, H., 163
- Baumeister, W., 194, 195, 233, 241, 350
- Baur, A. F. J., 353
- Baur, K., 186, 225, 260
- Bausina, K. F., 261
- Baver, L. D., 53, 88, 105, 109, 178, 287
- Baxter, A., 180
- Bayliss, N. S., 340
- Baynes, W. C., 314
- Beach, F. H., 314
- Beach, G., 328
- Beach, W. S., 349
- Beachell, H. M., 244
- Beale, O. W., 112
- Beall, G., 69
- Bear, F. E., 46, 52, 186, 195, 207, 210, 216, 217, 260, 384
- Beard, F. H., 300
- Beard, J. S., 381, 382
- Beard, P. J., 20
- Beare, J. A., 313, 344
- Beasley, R. P., 214, 241
- Beater, B. E., 30, 45, 71, 79
- Beath, O. A., 51
- Beattie, J. H., 301, 324, 348
- Beattie, W. R., 324, 346, 348, 349
- Beau, M., 258
- Beauchamp, C. E., 21, 75, 268, 284, 285
- Beaumont, A. B., 68, 384
- Beaver, W. C., 139
- Bechdel, S. I., 257
- Beck, A. B., 400
- Beckenbach, J. R., 349
- Becker, A., 266
- Becker, J., 330
- Becker, T. E., 393
- Becker-Dillingen, J., 333
- Beckley, V. A., 214
- Beckwith, C. S., 327
- Becquerel, P., 280
- Bednall, B. H., 400
- Beeson, K. C., 42, 348
- Beggs, J. P., 399
- Behr, G., 91
- Behrens, W. U., 79
- Beinert, F. K., 216
- Bel'chikova, N. P., 309
- Belden, A., 388
- Belen, T., 398
- Belichenko, D. M., 25
- Beling, R. W., 197, 220, 232, 23
- Belkin, N. I., 25
- Bell, A. P., 156
- Bell, F. G., 135, 137
- Bell, R. S., 354
- Bello, A. C., 344
- Beloshapko, M. K., 120
- Belotelkin, K. T., 116
- Bel'sky, B. B., 281
- Belzile, A., 327
- Benaiges Aris, C., 164
- Bender, W. H., 37
- Benedict, H. M., 255
- Benevol'sky, S. A., 119
- Benford, H. R., 250
- Bengtson, J. W., 354
- Bengtsson, B., 119
- Bengtsson, N., 209
- Benischke, H., 74, 239
- Benne, E. J., 192
- Bennett, E., 63
- Bennett, H. H., 17, 129, 134, 135, 136, 380, 383, 386, 394, 397
- Bennett, H. W., 56, 388
- Bennett, S. H., 229, 232
- Bentacur, M. O., 397
- Bentley, M. R., 387
- Benton, R. J., 319, 402
- Berezansky, M. Ya., 253
- Berezhnov, M. F., 259
- Bereznitskaia, N. I., 238
- Berezova, E., 281
- Berezova, E. F., 280
- Berg, S., 91
- Bergdolt, E., 162
- Berge, T. O., 74, 145
- Berger, K. C., 77
- Bergh, H., 80
- Bergman, W. E., 30, 36
- Bergmann, G. G., 309

# AUTHOR INDEX

- Bergström, I., 299  
 Bergström, S., 346  
 Beriya, N. T., 202  
 Berkner, F., 185, 195, 268, 271, 288  
 Bernikov, V. V., 64, 337  
 Bernon, G., 330  
 Bershova, O. I., 142, 151  
 Berthelot, C., 87  
 Bertoni, G. T., 397  
 Bertramson, B. R., 49, 76, 173  
 Bertrand, D., 58, 59, 148, 181, 258  
 Bertrand, G., 291  
 Bertrand, H. W. R., 242  
 Bertrand, P., 346  
 Bernalov, N. D., 39  
 Bestor, H. A., 387  
 Betty, R. C., 148  
 Beutner, E. L., 103, 132, 161  
 Bewley, W. F., 150, 354  
 Bezruk, V. M., 23  
 Bhaskaran, T. R., 143, 144  
 Bhat, J. V., 44  
 Bhat, S. S., 368  
 Bhattacharji, P. B., 127  
 Bhowmick, H. D., 141  
 Bhuiyan, A. B., 59, 125  
 Biebel, J. P., 355  
 Biebertbeck, A., 240  
 Biebl, R., 351  
 Biggs, A. I., 73  
 Bigot, A., 283  
 Biashev, G., 275  
 Binkley, A. M., 161, 350  
 Binnie, R. R., 267  
 Birch, T. C., 338  
 Bird, J. A., 392  
 Birdsall, B., 197  
 Biriukova, A. P., 39  
 Birkinshaw, F., 371  
 Birrell, K. S., 204  
 Bisal, F., 91  
 Bisby, G. R., 151  
 Bistry, N. F., 93  
 Bizzell, J. A., 55  
 Björkman, E., 151, 152, 338  
 Black, C. A., 48  
 Black, I. A., 75, 80  
 Blackburn, G., 240  
 Blackie, W. J., 73, 404  
 Blackman, G. E., 232, 281, 304, 344  
 Blackmon, G. H., 318, 323, 383  
 Blackmore, R., 266  
 Blagoveshchensky, E. N., 124  
 Blagovidov, N. L., 361  
 Blair, A. W., 195, 213  
 Blair, I. D., 93  
 Blair, G. Y., 95  
 Blake, G. A., 208, 210, 211  
 Blanch, G. T., 156  
 Blanck, E., 50, 191, 206, 371  
 Blanes, E., 322  
 Blaney, H. F., 309  
 Blaser, R. E., 253, 256, 257, 258, 265, 386  
 Bledsoe, R. P., 241, 248, 276, 386, 387  
 Blacher, G. S., 199  
 Blick, R. T. J., 295  
 Blin, H., 372  
 Bliss, D. E., 116, 225, 324  
 Blodgett, F. M., 273  
 Blood, P. T., 241, 269, 270, 385  
 Blosser, R. H., 136  
 Blume, J. M., 71, 187  
 Blumendal, N., 96, 97  
 Bobko, E. V., 31, 134, 180, 183  
 Bobritskaia, M. A., 61  
 Bochstahler, H. W., 225  
 Bocht, B., 50, 191, 206  
 Bode, H. R., 301  
 Bodily, H. L., 138  
 Bodman, G. B., 97, 103, 104, 107  
 Boerger, A., 397  
 Bogdanovitch, I. A., 251  
 Bogomolov, D. V., 132, 136  
 Bogopol'sky, M. D., 139, 142, 143, 151  
 Boguslawski, E. von, 66, 71, 102, 301  
 Böhler, H., 248  
 Bohstedt, G., 249  
 Boicourt, A. W., 352  
 Bojanoff, P., 111  
 Bollen, W. A., 217  
 Bollen, W. B., 108, 139  
 Bomford, D. R., 17  
 Bomford, J. F., 250  
 Bond, F. C., 92  
 Bond, G., 149, 263  
 Bond, J. R., 253  
 Bond, T. E. T., 222  
 Bondorf, K. A., 70, 76  
 Bondurant, J. H., 388

# AUTHOR INDEX

- Bonewitz, W., 76  
 Böning, K., 295  
 Böning-Seubert, E., 295  
 Bonner, J., 184, 309  
 Bonnet, J. A., 381  
 Bonsteel, J. A., 384  
 Booth, A. W., 388  
 Booth, W. E., 133  
 Bora, M., 297  
 Bordas, J., 360  
 Bordeleau, R., 294, 295  
 Borden, R. J., 44, 70, 187, 193, 283, 284, 285, 286, 287  
 Borenstein, S. I., 188  
 Bores, M. S., 361, 373  
 Borisov, S., 340  
 Bornebusch, C. H., 333  
 Borneman-Starynkevich, I. D., 57  
 Borovik, S. A., 57, 73, 309  
 Borovik-Romanova, T. F., 309  
 Borovsky, I. B., 57  
 Borsacov, V., 283  
 Borst, H. L., 134, 259  
 Bortels, H., 224, 259  
 Bortfeld, C. F., 115  
 Bortner, C. E., 54, 198, 296  
 Bose, S. R., 152  
 Boshart, K., 342  
 Bosman, F. H., 172, 258  
 Boswell, V. R., 347  
 Botha, P. J., 266  
 Botkin, C. W., 173  
 Bottcher, E. J., 93  
 Botvay, K., 92  
 Bougy, E., 290  
 Bouquet, A. G. B., 267, 343, 346  
 Bourbakis, C. J., 284  
 Bourmer, H., 211  
 Bourne, C. L. C., 397  
 Boutaric, A. A., 87  
 Bouyoucos, G. J., 87, 88  
 Bowden, O., 401  
 Bowden, R. A., 353  
 Bowen, A. B., 61  
 Bower, C. A., 84, 178, 179  
 Bowsby, C. C., 117  
 Bowman, F. T., 317, 329  
 Bowman, R. C., 400  
 Bowser, W. E., 378, 379  
 Box, M. M., 305, 306, 361  
 Boyd, I. L., 389  
 Boyes, J., 263  
 Boynton, D., 108, 311, 313, 314, 316, 317  
 Braadlie, O., 77, 80  
 Bracken, A. F., 60, 177, 237, 392  
 Bradfield, R., 55, 154, 189  
 Bradt, O. A., 311  
 Bramão, L., 361  
 Bramble, W. C., 104  
 Branas, J., 330  
 Brandenburg, E., 299, 346  
 Brandes, E. W., 309  
 Brandon, J. F., 350  
 Brandt, A. E., 69, 71  
 Brantseg, A., 331  
 Brase, K. D., 352  
 Brasher, E. P., 271  
 Braucher, O. L., 323  
 Bray, R. H., 31, 32, 47, 53, 54, 75, 76  
 Bredon, G. W. D., 136  
 Bream, C. E., 116  
 Bredemann, G., 282  
 Bregger, J. T., 102, 317  
 Brenchley, W. E., 181, 346  
 Brener, W. H., 335  
 Brennen, C. A., 393  
 Brenner, J. G., 389  
 Breton, R. M., 380  
 Brett, P. G. C., 227  
 Brewer, C. A., Jr., 389  
 Brewer, H. E., 317  
 Briant, A. K., 329  
 Brickley, W. D., 273, 292  
 Brierley, W. G., 116, 328  
 Briggs, G. W. G., 373  
 Brill, G. D., 132  
 Brinkerhoff, L. A., 316  
 Briolini, M., 237  
 Briquet, E., 212  
 Briscoe, C. F., 148  
 Britton, J. E., 317  
 Broadfoot, W. M., 84  
 Brodsky, A. L., 153  
 Brokaw, W. C., 161  
 Bromehead, C. E. N., 58  
 Bronzova, G. Ya., 252  
 Brooks, A. N., 347  
 Brooks, L. E., 389  
 Brouwer, 219  
 Brown, A. L., 43  
 Brown, B. A., 246, 251, 254, 260, 272, 385

# AUTHOR INDEX

- Brown, B. E., 196, 197, 199, 204, 205, 269, 271, 272
- Brown, C. A. C., 161
- Brown, C. B., 130
- Brown, C. W., 337
- Brown, D. D., 294, 296, 377
- Brown, D. E., 294
- Brown, D. R. N., 374
- Brown, D. S., 313, 315
- Brown, F. C., 344
- Brown, H. A., 132
- Brown, H. D., 266, 345, 379
- Brown, H. M., 390
- Brown, I. C., 84, 124, 385
- Brown, J. B., 393
- Brown, J. C., 224
- Brown, J. G., 312, 318
- Brown, L. A., 21, 156
- Brown, L. N., 276
- Brown, O., 272
- Brown, P. E., 43
- Brown, P. H., 343
- Brown, R. J., 74, 287
- Brown, R. L., 167
- Brown, S. M., 319, 320, 321
- Brown, W. T., 253, 257
- Browne, G., 168
- Browning, D. R., 105, 107
- Browning, G. M., 25, 89, 105, 106, 110, 112, 113, 160, 169, 385
- Broyer, T. C., 32, 139
- Bruce, A., 45, 143, 297
- Bruce, H. D., 230
- Bruin, P., 203
- Bruinsma, J. R., 289
- Brüne, F., 23, 104, 187, 192, 234
- Brunner, A., 109
- Bryan, O. C., 191, 319
- Bryant, L. R., 317, 328
- Bryce, J., 257
- Bryden, J. D., 313
- Brykczynski, J., 290
- Bryner, W., 186
- Bucher, R., 210
- Buckhannan, W. H., 117, 156
- Budhiraja, K. L., 304
- Buehrer, T. F., 107, 124, 143
- Bugay, S. M., 294, 295
- Buhler, E. O., 138
- Bukharev, F. I., 259
- Bulgakov, N., 195
- Bulycheva, V. E., 122
- Bunce, A. C., 136
- Bunger, H., 387
- Bunker, H. J., 21
- Bunting, A. H., 219
- Burcik, E., 147
- Burger, H., 104, 332
- Burgess, A. H., 300
- Burgevin, H., 212, 234
- Burk, D., 143, 145
- Burk, E. F., 269
- Burke, E., 391
- Burkhart, L., 78, 94, 95, 324, 329
- Burkholder, P. R., 179
- Burlison, W. L., 137, 256, 264
- Burmister, D. M., 118
- Burns, W., 163, 367, 368
- Burrell, A. B., 315, 316
- Burrell, R. C., 345
- Burrill, G. H., 156
- Burris, R. H., 143, 144, 145, 148
- Burström, H., 177
- Burton, G. W., 256, 257
- Burvill, G. H., 190, 205, 213, 269, 311, 400
- Bushnell, J., 201, 268, 269, 270, 272, 342, 345
- Bushnell, T. M., 117, 389
- Buswell, A. M., 34
- Butenko, G. A., 199
- Butkevich, V. S., 144, 148, 149, 264
- Butkevich, V. V., 31
- Butler, B., 401, 402
- Butovsky, A. P., 231
- Byers, G. B., 388
- Byers, H. G., 51, 52
- Bykov, M. M., 207
- Bylinkina, V. N., 140

## C

- Cabotage, T. G., 245
- Cada, E., 292
- Cady, J. G., 119
- Cain, J. C., 315, 316, 317
- Calder, G. G., 250
- Caldevilla, G. M., 397
- Caldwell, A. C., 122
- Caldwell, O. G., 28
- Calma, V. C., 284
- Calton, W. E., 38, 126
- Calvert, J., 282



# AUTHOR INDEX

- Cambournac, F. J. C., 244  
 Cameron, C., 285, 397  
 Cameron, S. H., 321  
 Camp, A. F., 320  
 Campagna, E., 380  
 Campanile, S., 360  
 Campbell, J. C., 205  
 Campbell, J. P., 133  
 Cann, D. B., 380  
 Cantino, E. C., 85  
 Capuler, B., 370  
 Cardon, B. P., 124  
 Cardwell, D. W., 130  
 Carey, A. S., 86, 87  
 Cariss, H. G., 205, 238, 400  
 Carleton, E. A., 133, 165  
 Carlson, W. E., 79, 181, 288, 292  
 Carlyle, R. E., 141, 217  
 Carman, P. C., 25  
 Carnes, A., 168  
 Carns, W. A., 61  
 Carolus, R. L., 37  
 Carpenter, C. C., 20  
 Carpenter, C. W., 404  
 Carpenter, G. A., 392  
 Carr, R. B., 251  
 Carr, W. A. C., 248  
 Carreker, J. R., 17, 164  
 Carrigan, R. A., 35, 55  
 Carroll, D., 156, 400  
 Carroll, J. C., 353, 354  
 Carter, J., Jr., 165  
 Carter, J. S., 17  
 Carter, W., 230  
 Cartmill, W. J., 247  
 Cartter, J. L., 262, 264  
 Carvalho e Vasconcellos, J. de,  
     41  
 Cassady, J. T., 170  
 Cassidy, N. G., 174, 212  
 Castelli, T., 263  
 Caster, A. B., 143  
 Castillo, E. Y., 245  
 Catterall, R., 219  
 Cernescu, N., 34  
 Černý, M., 237, 289  
 Cero, M. M., 157  
 Chabrolin, C., 372  
 Chadwick, L. C., 44, 354  
 Chakravorty, J. N., 125  
 Chakravorty, S. K., 30  
 Chamberlain, H. de O., 259, 399  
 Chandler, A. L., 322  
 Chandler, F. B., 327, 345  
 Chandler, R. F., Jr., 88, 120, 224,  
     331, 333, 338, 341, 378  
 Chandler, W. V., 46  
 Chang, C. W., 115  
 Chang, N. F., 365  
 Chang, P. C., 123  
 Chao, P., 245  
 Chapek, M. V., 99, 102  
 Chapline, W. R., 137  
 Chapman, A. G., 337, 389  
 Chapman, C. J., 187  
 Chapman, G. W., 94  
 Chapman, H. D., 35, 149, 197,  
     222, 318, 319, 320, 321  
 Chapman, J. E., 133  
 Chapman, L. J., 379  
 Charpentier, C. A. G., 251  
 Charter, C. F., 381, 382  
 Chase, F. E., 138, 139  
 Chase, F. M., 212  
 Chase, L. W., 18  
 Chatterjee, B., 37, 57, 157  
 Chaturvedi, H. S., 216  
 Chawla, D. R., 33  
 Chen, E.-F., 111  
 Chen, H. K., 147  
 Chen, H. Y., 163  
 Chen, Sh. Y., 349  
 Chenfeng, K., 365  
 Cheng, T. T., 244  
 Chepelevetsky, M. I., 201  
 Chepil, W. S., 91, 130, 131  
 Chernavin, S., 318  
 Chernetsky, A. I., 238  
 Chernov, I. S., 347  
 Chesalkina, P., 217  
 Chetty, C. V. S., 293  
 Chiang-kwoh, Y., 365  
 Chiappelli, R., 211  
 Chich, L. L., 364  
 Child, R., 324  
 Childers, N. F., 100, 311, 314  
 Childs, E. C., 17, 87, 100, 101,  
     171  
 Childs, W. H., 108, 326  
 Chilton, S. J. P., 225  
 Chinnarasa, E., 194  
 Chirikov, F. V., 200, 203  
 Chirvinsky, P. N., 119  
 Chisholm, R. D., 231  
 Chittenden, E., 316  
 Chitwood, E. G., 230

# AUTHOR INDEX

- Chizhevsky, M. G., 164  
 Chizhov, B. A., 177  
 Chkhaidze, I., 297, 363  
 Chkhikvishvili, V. I., 283  
 Cholak, J., 55  
 Chown, W. F., 380  
 Christensen, H. R., 104  
 Christiansen, J. E., 18, 19, 100  
 Christidis, B. G., 275  
 Chu, S. M., 365  
 Chu, T. S., 35  
 Chucka, J. A., 269, 271  
 Chung, T. S., 365  
 Ciferri, R., 372  
 Clapp, H. S., 353  
 Clapp, L. E., 168  
 Clapp, R., 353  
 Clarens, J., 54, 75  
 Clark, A. F., 230  
 Clark, F. E., 139, 239, 279  
 Clark, H. E., 230, 231  
 Clark, J. A., 380  
 Clark, J. H., 328  
 Clark, K. G., 199  
 Clark, M. W., 135  
 Clark, N., 134, 389  
 Clark, N. A., 82  
 Clark, W. M., 211  
 Clarke, E. de C., 400  
 Clarke, E. J., 313, 348, 349  
 Clarke-Butler-Cole, R. F., 373  
 Clarke, S. E., 378  
 Clason, E. W., 286  
 Clawson, M., 392, 393  
 Clayton, B. S., 23, 386  
 Clayton, E. E., 296  
 Clemente, A., 398  
 Clements, H. F., 176, 284, 285  
 Clements, J. B., 377  
 Clift, L. F., 358  
 Close, A. M., 136  
 Clouston, D., 118, 356  
 Clydesdale, C. S., 243  
 Coates, W. H., 60, 129, 270, 273  
 Coble, L. S., 299  
 Cocker, H. R., 18  
 Cochran, H. L., 301  
 Cochran, W. G., 70, 163, 241, 275  
 Cochran, W. P., Jr., 380  
 Cocke, R. P., 258  
 Code, W. E., 174  
 Codling, J. H., 216  
 Codoni, M. R., 32, 92  
 Coetzec, P. J. S., 166  
 Cohec, M. V., 133  
 Coile, T. S., 99, 184, 266, 338  
 Coit, J. E., 325  
 Coke, J., 378  
 Coke, J. E., 88  
 Colby, W. G., 248, 385  
 Coldwell, A. E., 131  
 Cole, C. E., 318, 403  
 Cole, R. O., 169  
 Cole, W. F., 26, 27, 159  
 Coleman, O. T., 129  
 Coleman, R., 47, 48, 201  
 Coles, R., 190  
 Colin, H., 289  
 Collier, G. W., 136  
 Collier, T. R., 260  
 Collins, E. R., 66, 95, 185, 324, 387  
 Collins, E. V., 160, 226  
 Collins, J. C., 377  
 Collison, R. C., 165, 326, 327, 330  
 Colman, E. A., 107  
 Colón, A. A., 34  
 Colon, J. L., 292  
 Colón Torres, R., 381  
 Colvin, W. S., 107  
 Colwell, W. E., 95, 182, 260  
 Comin, D., 344  
 Compton, L. L., 102  
 Compton, O. C., 108, 310  
 Condit, I. J., 325  
 Conn, H. J., 68  
 Conn, J. E., 68  
 Connell, R. P., 280  
 Conrad, J. P., 23, 44, 51, 190, 312  
 Conrey, G. W., 155, 164, 255, 390  
 Constable, E. W., 74  
 Conti, M., 98  
 Converse, C. D., 68, 157  
 Conybeare, A. B., 384, 386  
 Cook, H. L., 186, 196, 390  
 Cook, H. T., 273  
 Cook, L., 250  
 Cook, L. J., 280, 401  
 Cook, O. F., 308  
 Cook, R. L., 51, 70, 186, 267, 291, 351, 390  
 Coombes, A. N., 378  
 Coombes, F. N., 378

# AUTHOR INDEX

- Coons, G. H., 225
- Cooper, A. W., 130
- Cooper, H. F., 195, 286
- Cooper, H. P., 277, 278
- Cooper, H. R., 297
- Cooper, J. R., 41, 318
- Cooper, W. E., 116, 332
- Copeland, J. T., 168
- Copeland, O. L., 47
- Copisarow, M., 192, 196, 226
- Copley, T. L., 168
- Corbaz, J., 212
- Corbett, W., 348
- Corby, H. D. L., 373
- Cordner, H. B., 241
- Cornelison, A. H., 195, 286
- Cornell, F. D., Jr., 251
- Cornes, J. J. S., 399
- Cornet, L., 45
- Cornish, E. A., 69, 70
- Correns, C. W., 19
- Costa, A., 303
- Costa, J. V. B. da, 89, 361
- Costello, D. F., 227
- Coster, C., 398
- Cotton, R. H., 95, 96, 348
- Coulter, J. W., 133, 404
- Coup, M. R., 248
- Covell, G., 368
- Coventry, A. F., 379
- Cowart, F. F., 320, 322
- Cowart, R., 196
- Cowdry, W. A. R., 275
- Cowie, G. A., 270, 272, 273
- Cox, H. R., 217
- Cox, M. B., 18, 135, 168
- Cox, T. R., 193, 198
- Crafts, A. S., 230, 233
- Craig, J. C., 266
- Craig, N., 284, 377
- Crain, A. W., 222
- Cralley, E. M., 244, 246
- Crane, J. C., 282
- Cranfield, H. T., 219
- Crawford, M., 185
- Crawford, R. F., 222, 225
- Crawford, W. N., 256
- Credner, W., 371
- Creyke, T. C., 357
- Crha, B., 158
- Criddle, W. D., 173
- Cripps, E. G., 42, 96
- Crocioni, A., 324
- Crocker, R. L., 401, 402
- Crocker, W., 245
- Croesen, V. R. I., 364
- Crombie, B., 237
- Cromer, G. W., 66
- Cromwell, B. T., 349
- Crone, G. R., 364
- Crook, R., 236
- Cross, C. E., 329
- Cross, F. B., 98, 175
- Crossley, D. I., 29
- Croucher, H. H., 329, 382
- Crowley, D. J., 329
- Crowley, R. B., 162
- Crowther, E. M., 128, 174, 212, 213, 219, 357
- Crowther, F., 163, 275, 277, 279
- Croxall, H. E., 273, 345
- Cruellas, J., 395
- Cruz, S. R., 150
- Csiky, J., 156
- Cueto, D. C., 292
- Culbert, J. I., 392
- Culbert, J. R., 352
- Culbertson, J. O., 390
- Cullinan, F. P., 311, 318
- Cullity, M., 208, 210
- Culpin, C., 163, 210, 212, 249, 357
- Cultrera, R., 42
- Culvert, J. R., 352
- Cumberland, K. B., 399
- Cumings, G. A., 186
- Cummings, R. W., 56, 73, 88, 182
- Cummings, W. H., 334
- Cunningham, C. R., 347
- Curini-Galletti, A., 25
- Curnow, D. H., 247
- Currey, E. A., 274
- Curry, A. S., 344
- Curtis, D. S., 35
- Cushing, R. L., 243
- Custodia, H. A., 243
- Cutler, G. H., 115
- Czeratzki, W., 30, 109, 111
- Czibulka, F., 37

D

- Dachnowski-Stokes, A. P., 22, 394
- Dadykin, V. P., 140, 228

# AUTHOR INDEX

- Daigh, F. C., 100  
Daji, J. A., 130, 215  
Dale, T., 387  
Dalglish, C. S., 399  
Dames, T. R., 68  
Damsgaard-Sorensen, P., 52, 53  
Dancaster, E. A., 232  
Danchenko, F. I., 281  
D'Angremond, A., 306  
Daniel, H. A., 135, 166, 387  
Dankhova-Anokhina, M. V., 190  
Dannhardt, H., 234  
Darke, J. E., 355  
Darling, C. A., 405  
Darnielle, R. B., 21  
Daroga, R. P., 82  
Darrah, L. B., 384  
Darrow, G. M., 326, 327, 328, 385, 389, 393  
Das, N. K., 169, 367  
Dastur, R. H., 245, 276, 278  
Davenport, N., 168  
Davey, A. E., 292  
David, P. A., 300  
Davidovsky, G. O., 193  
Davidson, A. L. C., 89  
Davidson, A. M. M., 73, 81  
Davidson, J., 305  
Davidson, J. B., 226  
Davidson, L. G., 286  
Davidson, O. W., 162, 385  
Davies, E. B., 188  
Davies, H. R., 295  
Davies, R. O., 252, 271, 345  
Davies, W., 358  
Davies, W. M., 188, 357  
Davis, C. H., 227  
Davis, C. M., 391  
Davis, F. E., 90, 163  
Davis, F. L., 47, 389  
Davis, G. B., 19  
Davis, J. E., 335  
Davis, J. F., 70, 186, 213, 350, 351  
Davis, L. E., 24, 36  
Davis, M. B., 314  
Davis, P. W., 337  
Davis, S. J., 325  
Davis, W. E., 87  
Davison, J. R., 312, 317  
Davtian, G. S., 45, 75  
Davydov, G. K., 110, 121  
Dawson, E. S., 210  
Dawson, R. B., 354  
Dawson, R. F., 339  
Day, G. M., 341  
Day, M. W., 337  
Day, P. R., 106, 107  
De, S. C., 141  
Dean, H. K., 260  
Dean, L. A., 52, 178, 329  
Dearborn, C. H., 346  
Deasy, D., 215, 271, 356  
Deasy, G. F., 371, 396  
Deb, B. C., 125, 126, 127  
DeBard, A. S., 325  
Decena, S. A., 190  
Decker, S., 166  
Decker, S. W., 392  
DeConno, E., 306  
Decoux, L., 288, 289, 290, 292  
De France, J. A., 214, 255, 353, 354, 385  
Deger, E., 380  
Degman, E. S., 317  
Delemenchuk, M. I., 287  
DeLong, W. A., 48, 58, 60  
Demidenko, T. T., 176, 238, 302, 304  
Demolom, A., 43, 51, 79, 148, 165, 212  
Denisov, N. Ya., 98, 158  
Dennis, A. C., 52, 182, 223, 345  
Dennis, R. W. G., 52, 182, 223  
DenUyl, D., 335  
De Rosayro, R. A., 368, 369  
Desai, H. M., 368  
Deschiens, R., 224, 225  
Deshevvykh, G. D., 161  
Deshpande, R. B., 301  
Deshusses, L. A., 161, 212  
De Silva, C. A., 307  
Desio, A., 372  
De Sornay, A., 284  
De Szabo, J., 134  
DeTurk, E. E., 53, 77, 201, 202, 222, 233  
De Vall, W. B., 41  
de Villiers, J. I., 208, 377  
De Wet, I. J.,  
Dhar, N. R., 65, 143, 144  
Dhareshwar, S. S., 127  
Dhawan, C. I., 65, 236  
D'iakov, N., 288  
Diakova, E. V., 258  
Diaz y Muñoz, J., 361

# AUTHOR INDEX

- Dibble, C. B., 137  
 Dick, J. B., 278, 279  
 Dick, R. D., 229  
 Dickerson, W. H., Jr., 137  
 Dickey, R. D., 303, 318  
 Dickman, S. R., 32, 47, 75, 176, 202  
 Dickson, G. H., 311  
 Dickson, W., 134, 378, 379  
 Diebold, C. H., 106, 222  
 Dieffenbach, E. M., 226  
 Diekmann, J., 208, 359  
 Dijkveld Stol, J. J., 96  
 Dikusar, I. G., 140, 186, 309  
 Dillman, A. C., 390  
 Dimo, N. A., 154  
 Dimock, A. W., 151  
 Dines, H. G., 357  
 Dipenaar, B. J., 223, 313  
 Dirks, B., 19  
 Dittmer, H. J., 262  
 Dittrich, J., 104  
 Dixon, J. K., 189, 200  
 Djurle, O., 23, 226, 247  
 Dmitrenko, O. I., 32  
 Dmitriev, K. A., 260, 261  
 Doak, B. W., 55, 188, 200, 201  
 Doak, K. D., 340  
 Doane, D. H., 156  
 Dobrokhlebov, I. F., 226  
 Dodd, D. R., 261  
 Dodds, H. H., 285, 376  
 Dodge, F. N., 45  
 Dodson, W. R., 387  
 Doehlert, C. A., 327, 329  
 Doerell, E. G., 199, 291  
 Doiarenko, A. G., 90  
 Dolgov, S. I., 101, 107, 109  
 D'Oliveira, A. J. S., 361  
 Domingo, C. E., 89  
 Domingo, W. E., 282  
 Dömötör, E., 72; 75  
 Donahue, R. L., 61, 332, 333  
 Donaldson, R. W., 260  
 Doneen, L. D., 87, 101, 287  
 Donelson, E. G., 271  
 Donnelly, M., 162, 169, 325  
 Doolittle, S. P., 301, 348  
 Doop, J. E. A. den, 126  
 Dore, W. G., 255  
 Dore, W. H., 38  
 Dorman, C., 185  
 Dorokhova, N. A., 152  
 Dorosinsky, L. M., 260, 261  
 Dorph-Petersen, K., 70, 209  
 Dortignac, E. J., 335  
 Dosch, E. F., 133  
 Dost, H. F., 207  
 Dostál, R., 268  
 Doten, S. B., 310  
 Doughty, J. L., 35, 142  
 Douglas, W. A., 246  
 Down, E. E., 68, 71  
 Downes, R. G., 90  
 Downing, J. M., 168  
 Drachev, S. M., 59  
 Drake, K., 388  
 Drake, M., 178, 179, 186, 241  
 Dravid, R. K., 115  
 Drechsler, C., 152, 225  
 Drees, E. M., 337  
 Dregne, H. E., 260  
 Dreibelbis, F. R., 102, 116  
 Drew, J. P., 215, 271, 356  
 Drew, W. B., 258  
 Dreyssing, C., 223, 264, 272  
 Driessen, F. C., 140, 212  
 Drilkins, H., 252  
 Driuchenko, M. M., 332  
 Drobkov, A. A., 181, 309, 351  
 Drosdoff, M., 26, 73, 80, 124, 157, 302, 303  
 Drouineau, G., 46, 80  
 Drozdetsky, P. A., 31, 110  
 Duarte, P. J., 394  
 Dubov's'ka, N. V., 60  
 Duchoň, F., 81, 96  
 Dücker, A., 116  
 Dudenbostel, B. F., 34  
 Dudgeon, L. T., 270  
 Dudnikov, M. F., 89  
 Dufrénoy, J., 148  
 Dugand, A., 3, 396  
 Duggan, J. B., 317  
 Dukhanin, K. S., 142  
 Duley, F. L., 18, 82, 89, 103, 106, 132, 142  
 Dumaresq, J. A., 247, 249  
 Dunbar, C. O., 317  
 Duncan, E. N., 275  
 Duncan, W. H., 336  
 Dunez, A., 148  
 Dungan, G. H., 161  
 Dunkelberg, G. H., 161  
 Dunkle, E. C., 335  
 Dunkle, P. B., 387

# AUTHOR INDEX

- Dunklee, D. E., 52, 188, 190,  
191, 194, 210, 251, 259  
Dunmire, R. G., 391  
Dunn, L., 305  
Dunn, L. E., 81, 189, 208  
Du Preez, W. B., 227  
Dupret, R., 374  
Durnovtsev, D. I., 27, 123, 276  
Du Sautoy, W., 169, 302  
Du Toit, J. J., 376  
Dwyer, R. E. P., 404  
Dyas, E. S., 390  
Dyer, W. J., 49  
Dykstra, A., 399  
Dykvj, J., 289  
Dymond, G. C., 219, 377  
Dyo, S., 243, 246  
Dzens-Litovskaia, N. N., 124
- E
- Eardley, C. M., 305  
Earley, E. B., 262  
Eastwood, H. W., 329  
Eastwood, T. M., 355  
Eaton, F. M., 34, 66, 162, 173  
Eaton, S. V., 224, 304  
Eaton, T. H., Jr., 119, 154, 333  
Ebert, M. H., 396  
Ebright, V. R., 345  
Eby, C., 261  
Eddins, A. H., 273  
Eden, T., 297, 298  
Edgecombe, S. W., 184, 353  
Edlfsen, N. E., 87, 88, 89, 90,  
100, 103  
Edminster, F. C., 384  
Edmond, J. B., 161  
Edmundson, W. C., 344  
Edwards, D. C., 166, 241  
Edwards, M. J., 155  
Efendi-Zade, E., 362  
Egglbuber, E., 281  
Egler, F. E., 404  
Egnér, H., 75, 78  
Egorov, M. A., 65  
Egorov, V., 160  
Egorov, V. E., 120  
Egorov, V. V., 362  
Eheart, J. F., 254, 267  
Ehrenberg, P., 24, 110, 128, 135,  
137, 205, 359  
Eichenberger, E., 93  
Eisenmenger, W. S., 37, 107,  
180, 384  
Eitel, W., 27  
Ejercito, J. M., 398  
Ekkel, B. E., 91  
Eksteen, L. L., 160, 174  
Ekstrand, H., 315  
Ekström, G., 363  
Elbert, W., 188  
Elgabaly, M. M., 32, 33  
Eliassen, R., 218  
Elkina, O. G.  
Elkonin, N. G., 121, 265  
Ellenby, C., 271  
Ellett, W. B., 247, 254  
Elliott, A. G., 188, 205, 206, 237,  
253, 254, 399  
Elliott, H. G., 250, 280  
Elliott, I. L., 204, 212  
Ellis, E. T., 216  
Ellis, G. H., 348  
Ellis, H. J., 378  
Ellis, H. R., 153  
Ellis, J. H., 237, 379  
Ellis, M., 338  
Ellis, N. K., 301  
Ellison, W., 358  
Ellison, W. D., 131, 138  
Ells, V. R., 73, 84  
Elmendorf, E., 342  
Elson, J., 61, 110, 113, 134  
Elwell, H. M., 135, 166, 388  
Ely, J. B., Jr., 156  
Elze, D. L., 347  
Emel'ianov, I. E., 68  
Emmert, E. M., 69, 348  
Endell, K., 26  
Enders, C., 62, 64  
Endrédy, E., 57, 78, 159  
Enge, G., 87  
Engelke, H., 359  
Engelmann, C., 273  
Engels, O., 179, 189, 199, 359  
Englehorn, A. J., 118  
English, L., 71  
Engström, S., 209  
Enicov, C., 43  
Enlow, C. R., 135  
Ensminger, L. E., 31, 60  
Eperjessy, G., 177  
Eppling, F. J., 145, 148  
Epps, E. A., 244

# AUTHOR INDEX

- Epstein, E., 224  
 Erdman, R. L., 131  
 Eremin, G. G., 40, 123  
 Erenburg, P. M., 342  
 Erickson, R. O., 389  
 Eriksson, S., 50, 99, 116, 363  
 Ermolaev, M. F., 282  
 Ernest, E., 189  
 Erteld, W., 337  
 Esh, G. C., 61  
 Espino, R. B., 245  
 Esser, J., 359  
 Esteban, A. M., 361  
 Etheridge, W. C., 390  
 Etherington, J., 256  
 Evans, A. C., 108  
 Evans, G., 306  
 Evans, H., 284  
 Evans, I. L., 168  
 Evans, M. W., 255  
 Evans, S. T., 56  
 Evenden, W., 323  
 Evinger, E. L., 327  
 Ewing, J. A., 388  
 Ewing, K. P., 229  
 Ezubchik, A. A., 265
- F
- Fabricius, L., 333, 340  
 Fadullon, L. D., 106  
 Fagan, F. N., 312  
 Fagan, T. W., 233, 253, 271, 345  
 Fahlquist, F. E., 68  
 Fairbairn, W. A., 132  
 Fairbank, J. P., 187  
 Fairchild, R. E., 321  
 Fairfax-Blakeborough, J., 356  
 Fairs, G. L., 92  
 Falck, T., 220  
 Falconer, J. I., 390  
 Fantl, M., 279  
 Farnsworth, R. B., 98, 287  
 Farrar, I. E., 289  
 Farrell, M. A., 294  
 Fatus, G. K., 156  
 Faulkner, O. T., 163, 382  
 Faust, G. T., 20, 28, 72  
 Fawcett, K. I., 301  
 Fedorov, M. V., 146  
 Fedosova, A. F., 287  
 Fedulaev, A. L., 159  
 Fehér, D., 19, 140, 153  
 Fehmerling, G. B., 312  
 Fehrendt, W., 220  
 Feilden, G. St. C., 350  
 Feise, J., 359  
 Fellows, H., 225  
 Feng, C. L., 245  
 Fenton, E. W., 153, 226  
 Fenton, F. A., 166  
 Feofarova, I. I., 38  
 Fergus, E. N., 241  
 Ferguson, C. E., 149  
 Ferguson, W. S., 58  
 Fernando, M., 221, 293, 302, 304, 305  
 Fernholz, D. L., 303  
 Ferres, H. M., 68  
 Ferris, E. B., 274  
 Ferro, R. B., 354  
 Feucht, O., 227  
 Feustel, I. C., 68, 217  
 Fick, J. C., 129, 136  
 Fickender, E., 304  
 Fieldes, M., 212  
 Fife, C. V., 69, 171  
 Fife, J. M., 145  
 Fifield, W. M., 269  
 Fikry, M. A., 100  
 Filguerias, G., 215  
 Filingier, G. A., 313  
 Filippova, V. N., 40, 100  
 Filosofov, B. I., 85  
 Fina, A. L. de, 100  
 Finch, A. H., 219, 320  
 Findiklis, T. T., 364  
 Findlay, D. H., 357  
 Fine, L. O., 54  
 Fink, D. S., 251  
 Finn, R. F., 194, 334, 336, 339  
 Finnell, H. H., 136, 387  
 Finney, D. J., 228, 357  
 Fippin, E. O., 176  
 Fireman, M., 31, 73, 90, 104  
 Firsova, E. S., 85  
 Fischer, G. J., 294  
 Fischer, R., 263  
 Fisher, C. E., 134  
 Fisher, D. V., 317  
 Fisher, H. S., 389  
 Fisher, J., 249  
 Fitzhugh, E. A., 89  
 Fitzpatrick, R. E., 317  
 Flannery, R. D., 341

# AUTHOR INDEX

- Fleming, C. E., 392, 393
- Fleming, W. E., 230
- Fleming, W. S., 403
- Fletcher, C. C., 196
- Fletcher, J. C., 170
- Fletcher, J. E., 87, 101, 132
- Fletcher, P. W., 107
- Flor, H. H., 282
- Flory, E. L., 167
- Fogg, G. E., 153
- Fogle, H. G., 25
- Fokeev, P. M., 238
- Folley, G. E., 353
- Forbes, A. P. S., 214, 297
- Ford, O. W., 193
- Formozov, A. N., 154
- Forsee, W. T., Jr., 22, 172, 321
- Fortier, H. F., 259
- Fortier, S., 312
- Foscue, E. J., 382
- Foster, W. H., 284
- Foster, Z. C., 404
- Fotidar, M. R., 368
- Fowler, G. J., 219
- Fowler, R. H., 59
- Fox, G. W., 73
- Franck, O., 204
- Franco, M., 149
- Frank, F., 335
- Frank, M., 140, 153
- Frankel, J. J., 376
- Frankena, H. J., 99
- Franklin, H. J., 385
- Frankovski, E., 266
- Frantek, V., 181
- Frantsesson, V. A., 111, 288
- Franz, H., 153, 154
- Franzke, C., 391
- Fraps, G. S., 43, 52, 184, 247, 257
- Fraser, G. K., 118, 355, 356
- Fraser, H. F., 200
- Frazier, J. C., 227
- Frazier, W. A., 39
- Frear, D. E. H., 314
- Freckmann, W., 18
- Free, G. R., 103, 131, 160
- Freeman, J. F., 199
- Frei, E., 121
- Frei, H., 146
- Freire, S. L. C., 135
- Freudenberger, H., 211
- Frey-Wyssling, A., 364
- Fricke, E. F., 228, 262
- Fridman, N. G., 40, 123
- Fries, N., 338
- Fritsch, F. E., 153
- Fritz, R. F., 229
- Fritzsche, G., 116
- Fröier, K., 235
- Frolik, A. L., 392
- Frolov, B. A., 237
- Frolov, T. V., 308
- Frömel, W., 61, 62
- Fromm, F., 226, 232, 255
- FrondeU, C., 202
- Fu, H. D., 243, 365
- Fuchs, P., 82
- Fudge, B. R., 312, 319
- Fudge, J. F., 43, 52, 184, 247, 257
- Fuelleman, R. E., 249, 256
- Fuhrman, D. K., 173
- Fuller, W. H., 148, 149, 150
- Fults, J. L., 137
- Furr, J. R., 88, 108
- Futral, J. G., 277
- Fynn, C. A., 79, 397

## G

- Gabbard, L. P., 155
- Gadalova, K. I., 202
- Gadd, C. H., 297, 298
- Gaddini, S., 372
- Gaddis, P. L., 118
- Gaddum, L. W., 55
- Gädeke, E., 22
- Gaebe, R. R., 103
- Gael, A. G., 99
- Gaerlan, D., 53
- Gahlnäck, J., 215
- Gaines, J. G., 296
- Gaine, P. L., 147, 239
- Gaiser, R. N., 266
- Gallagher, P. H., 25, 60, 159, 236, 240, 356
- Galvez, N. L., 53, 159, 211, 245
- Gamarra Dulanto, L., 204
- Gammon, N., 68, 84
- Gams, H., 167
- Ganchev, N., 290
- Ganser, P., 20
- Gants, G. V., 337
- Ganz, E., 63



# AUTHOR INDEX

- Ganzha, B. A., 56, 121, 123  
 Gapon, E. N., 34, 57  
 Gapon, E. V., 107  
 Garassini, L. A., 93, 143  
 Garbutt, W. D., 370  
 Garcia-Molinari, O., 382  
 Gard, L. E., 137, 249  
 Gardner, F. E., 339  
 Gardner, H. H., 164  
 Gardner, J. L., 130, 173, 250  
 Gardner, R., 37, 43, 291, 317  
 Gardner, V. R., 86  
 Gardner, W., 97, 103  
 Garin, G. I., 155, 333  
 Garkina, N. R., 139  
 Garman, W. H., 42, 68, 72, 79, 277  
 Garmendia, L. I., 303  
 Garner, F. H., 233, 357  
 Garner, H. V., 189, 192, 269  
 Garola, J., 203, 360  
 Garrad, G. H., 192  
 Garren, K. H., 166  
 Garrett, S. D., 239  
 Garrison, C. S., 101  
 Garstka, W. U., 130  
 Gärtner, G., 158  
 Gärtner, H., 196  
 Gärtner, M., 94  
 Gauch, H. G., 260  
 Gault, L., 185  
 Gaw, H. Z., 97, 144, 264, 350, 365  
 Gayford, G. W., 402, 403  
 Gaylord, F. C., 301, 347  
 Gaywala, P. M., 302, 367  
 Gebert, L. P., 226  
 Gebhard, H., 94, 178  
 Gehlsen, C. A., 395  
 Gehm, H. W., 219  
 Geiger, K., 116  
 Geith, R., 249, 255  
 Geitman, B. G., 172  
 Geller, I. A., 19, 138  
 Gel'tser, F. Yu., 61, 110, 112  
 Gemmerling, G. V., 49, 62  
 Genninger, C., 59  
 Gentili, J., 400  
 Georgi, C. D. V., 194, 257, 371  
 Gerasimov, G. A., 116  
 Gerasimov, I. P., 117, 309, 361, 370  
 Gerdel, R. W., 133, 164  
 Gericke, S., 47, 97, 115, 148, 178, 180, 183, 187, 193, 201, 203, 209, 242, 252, 254, 263, 272, 301, 342, 343  
 Germanov, A. A., 202  
 Germanov, F. N., 192  
 Germanova, V. N., 112  
 Gerngross, O., 237  
 Gerretsen, F. C., 96, 97  
 Gersch, H. C., 353  
 Gerstenfeldt, H., 67  
 Gertenbach, J. J., 375  
 Gerth, G., 190  
 Geus, J. G. de, 258, 398  
 Geyer, B., 359  
 Ghani, A. K. M. Q., 30  
 Ghani, M. O., 48, 49, 50, 76, 77  
 Gheorghe, C., 210  
 Ghose, T. B., 367  
 Ghosh, K. C., 29, 85  
 Gibbs, J. A., 266, 332  
 Gibson, J. S., 387  
 Gibson, W. L., Jr., 386  
 Giddens, J., 43  
 Gieger, M., 276  
 Gier, L. J., 293  
 Giese, H., 222  
 Giesecke, F., 63, 65, 75, 141, 178, 195, 197, 198, 200, 202, 206, 235, 264, 272  
 Gieseking, J. E., 31  
 Gilbert, C. S., 51  
 Gilbert, S. G., 108  
 Gile, B. M., 388  
 Gile, P. L., 31, 68, 404  
 Giliarov, M. S., 93, 153, 229  
 Giliarovsky, I. P., 347  
 Gillam, W. S., 64, 80, 176  
 Gillern, C. von, 66, 183  
 Gillett, S., 374, 382  
 Gilligan, G. M., 199  
 Gillman, C., 375  
 Gilmore, A. E., 129  
 Ginai, M. A., 368  
 Ginzburg, G. D., 281  
 Göbel, G., 364  
 Giovanozzi, M., 293  
 Gish, P. T., 99, 213, 386  
 Givan, C. V., 173  
 Glangeaud, L., 127  
 Glanville, E. B., 170  
 Glanville, R. R., 373  
 Glass, 170

# AUTHOR INDEX

- Gleditsch, E., 347  
 Gleissner, F., 177  
 Glendening, G. E., 102, 170  
 Glentworth, R., 355  
 Glick, P. A., 229  
 Glockler, G., 188  
 Glotova, T., 90  
 Glover, H. M., 367  
 Goates, R., 152  
 Godbout, A., 71, 380  
 Godbout, G., 94  
 Godfrey, G. H., 230  
 Godlin, M. M., 65, 91  
 Goedewaagen, M. A. J., 41, 99  
 Goia, G., 237  
 Gokhale, V. G., 367  
 Gokhale, V. N., 130  
 Golden, L. B., 84  
 Goldfain, G., 94  
 Golding, E. W., 161  
 Goldman, M., 111  
 Goldschmidt, W. B., 261, 376  
 Goldstone, C. L., 168, 403  
 Goletiani, G. I., 297  
 Golik, M. G., 147  
 Gollán, J., 32  
 Gollán, J., Jr., 31, 81, 92, 395  
 Golle, V. I., 302, 304  
 Golubev, B. A., 193, 202  
 Gomez, C. G., 305  
 Gómez, L. A., 67, 298, 382  
 Gonçalves, A. P., 395  
 Gonggrijp, H., 97, 136  
 Gontaev, A. F., 227  
 Gonzenbach, W., 190  
 Goodall, D. W., 95  
 Goodding, T. H., 82, 143  
 Goodrich, F. J., 393  
 Goodspeed, T. H., 393  
 Goodstein, S. S., 373  
 Goodwin, K. R., 100  
 Goodwin, R. A., 73  
 Goodwin-Wilson, R., 379  
 Goor, G. A. W. van de, 246  
 Gopala Rao, G., 142  
 Goppe, G. S., 237  
 Gorbunov, N. I., 31, 32, 90, 103  
 Gordon, E. D., 160  
 Gordon, W. S., 150  
 Gore, U. R., 323  
 Gor'kova, I. M., 108  
 Gornaya, V. Ya., 80  
 Gorrie, R. M., 367  
 Gortner, R. A., 180  
 Gose, E. B., 304  
 Gossard, A. C., 323  
 Gössl, V., 118  
 Goswami, P. C., 57  
 Gottschalk, L. C., 130  
 Gottwick, R., 235, 257, 271, 321  
 Goudie, A. G., 402  
 Gould, F. W., 41  
 Gould, H. P., 322  
 Gourley, J. H., 161, 310, 312  
 Gouveia, D. H. G., 361  
 Grabarov, P. G., 78, 85, 86  
 Grabherr, W., 331  
 Grabovsky, I. S., 107  
 Gračanin, M., 118, 157, 364  
 Gracie, D. S., 173  
 Graf, T., 347  
 Grafton, The Duke of, 357  
 Graham, E. H., 132, 258  
 Graham, E. R., 33, 65, 114, 128, 159, 177  
 Graham, M. D., 374  
 Graham, R. C., 152  
 Grainger, E. E., 327  
 Grandfield, C. O., 66  
 Grange, L. I., 399  
 Grantham, G. M., 115  
 Gray, R., 218  
 Gray, R. B., 308  
 Gray, S. D., 261  
 Greaves, J. E., 38, 43, 60, 145, 146, 177, 289  
 Grebinsky, S. O., 317  
 Green, E. C., 403  
 Green, J., 201, 292  
 Green, W. W., 387  
 Greenawalt, R. D., 391  
 Greenham, C. G., 228  
 Greenway, P. J., 283, 306, 310  
 Greer, S. R., 302, 303  
 Gregory, G. B., 256  
 Gregory, P. H., 268  
 Greig, A. M. W., 330  
 Gretsinger, V. H., 371  
 Gribbins, M. F., 217, 295  
 Griffin, F. C., 220  
 Griffith, A. L., 228  
 Griffith, M., 167, 226  
 Griffith, R. B., 255  
 Griffiths, A. E., 18, 346  
 Grigor'ev, L. P., 234  
 Grigorov, O. N., 32

# AUTHOR INDEX

- Grim, R. E., 28  
 Grimmett, R. E. R., 399  
 Grin, G. S., 39, 362  
 Grinchenko, A. M., 39, 40  
 Grinfeld, E. K., 229  
 Grisf, D. H., 371  
 Griswold, F. S., 333  
 Gritsenko, I. F., 335  
 Grizzard, A. L., 251, 259, 265, 295, 324  
 Gross, E. E., 241, 275  
 Grosskopf, J. F. W., 375  
 Gruber, F., 262  
 Grushev, G. I., 330  
 Grushevov, S. E., 151, 294  
 Gudkova, E. P., 234  
 Guha Sircar, S. S., 61, 141  
 Guiang, A. C., 286  
 Guillebaud, W. H., 335  
 Guillochon, L., 372  
 Guinazu, J. R., 396  
 Guiscafré-Arrillaga, J., 298, 382  
 Gukova, M. M., 148, 149, 264  
 Gulati, A. N., 275  
 Gulashvili, V. Z., 98, 121  
 Gunesch, W. E., 231  
 Gupta, G. N., 216  
 Gupta, P. S., 244, 367  
 Gurevich, S. M., 121  
 Gurgel, J. T. A., 395  
 Gur'anova, O. Z., 114  
 Gurlev, A. S., 231  
 Gusev, E. P., 200, 201  
 Gusev, M. L., 271  
 Gusev, S. P., 112  
 Gushin, I. V., 259  
 Gustafson, A. F., 131, 384, 385  
 Gustafson, F. G., 341  
 Gustafsson, Y., 105, 363  
 Gut, R. -C., 335  
 Gutkina, E. L., 61  
 Gwynne, C. S., 117  
 Gyo, S., 236, 243, 246  
 Gysel, L. W., 332
- H
- Haag, A., 359  
 Haan, I. de, 297, 298  
 Haas, A. R. C., 35, 310, 321, 325, 326  
 Haber, E. S., 184, 187, 274
- Hackenberg, P. N., 256  
 Hackleman, J. C., 282  
 Hackwell, A. B., 402  
 Haddock, J. L., 28, 29  
 Hagan, R. M., 230  
 Hageman, R. H., 240, 262, 347, 355  
 Hahn, B. E., 143  
 Hahne, A., 345, 359  
 Haigh, J. C., 369  
 Haines, R. B., 150  
 Haines, W. B., 306  
 Haise, H. R., 98  
 Haldane, D., 356  
 Hale, J. M., 341  
 Haley, D. E., 217, 294, 295  
 Halfter, G., 126  
 Hall, A. D., 376  
 Hall, A. L., 375  
 Hall, A. R., 386  
 Hall, C. K., 172  
 Hall, F. A., 250  
 Hall, H. M., 383  
 Hall, J. W., 342  
 Hall, T. D., 251, 252  
 Haller, M. H., 313  
 Hallsted, A. L., 60, 243  
 Hallsworth, E. G., 193  
 Halvorsen, W. V., 97, 341  
 Halverson, L. H., 390  
 Ham, W. E., 117  
 Hamblin, I. E., 279  
 Hamdi, E., 121  
 Hamence, J. H., 83  
 Hamilton, A. B., 385  
 Hamilton, C. L., 137, 168  
 Hamilton, R. A., 266  
 Hamm, P. C., 74  
 Hammar, H. E., 323  
 Hammelburg, A. J. J., 371  
 Hammond, H. D., 68  
 Hamner, C. L., 232  
 Hampton, H. E., 68, 221  
 Hanada, M., 366  
 Hance, F. E., 71, 231, 404  
 Hancock, W. G., 402  
 Hanley, F., 187, 221  
 Hanley, J. A., 253  
 Hanna, W. J., 138, 343  
 Hannay, A. M., 300, 304  
 Hansen, D., 164  
 Hansen, F., 210  
 Hansen, F. J., 326

# AUTHOR INDEX

- Hansen, R., 382  
 Hanslow, H., 131  
 Hanson, A. M., 393  
 Harada, M., 80  
 Hardenburg, E. V., 350  
 Hardesty, J. O., 174, 207  
 Hardie, H. G. M., 356  
 Hardin, L. J., 187, 203  
 Harding, S. W., 171  
 Hardon, H. J., 204  
 Hardt, 239  
 Hardy, E. A., 226  
 Hardy, F., 42, 96, 109, 128, 158, 208, 299, 382, 394  
 Hardy, W. D., 402  
 Hargrave, J., 344, 353  
 Harley, C. P., 315  
 Harley, R., 56  
 Harmer, P. M., 23, 38, 57, 179, 192, 224, 287, 389  
 Harmon, F. N., 331  
 Harmsen, G. W., 93  
 Harper, A. S., 96, 128  
 Harper, H. J., 75, 237, 265, 277, 389  
 Harrell, G. D., 163  
 Harrington, F. M., 270  
 Harrington, G. E., 354  
 Harris, H. C., 181  
 Harris, H. L., 258  
 Harris, K., 276  
 Harris, L. E., 231  
 Harris, W. E., 51  
 Harrison, C. M., 165, 249, 256, 311  
 Harrison, E., 382  
 Harrison, K., 274  
 Harrison, R. W., 386  
 Harstad, H. T., 86  
 Harston, C. B., 149  
 Hart, R., 20, 355  
 Härtel, O., 116  
 Hartley, B. J., 366  
 Hartman, E. L., 347, 348, 355  
 Hartman, J. D., 70, 347, 349  
 Hartman, R. E., 273  
 Harvey, E. W., 207  
 Harvey, W. A., 233  
 Hartzell, A., 306  
 Hasegawa, G., 263  
 Haseman, J. F., 158  
 Hasler, A., 52, 56, 93  
 Hasper, E., 176  
 Hasselhubn, E. T., 307  
 Hassenkamp, W., 332  
 Hastings, S. H., 290  
 Hatcher, B. W., 190, 202, 205  
 Hatton, R. C., 326  
 Hauck, H. M., 270  
 Haupt, W., 74  
 Hauser, E. A., 25  
 Hauser, G. F., 32, 78  
 Hausrath, E., 18, 347  
 Have, J. ten, 203  
 Havis, A. L., 113  
 Havis, L., 60, 209, 391  
 Hawkins, A., 199, 205, 269, 271, 272  
 Hawkins, H. L., 357  
 Hawkins, R. S., 227, 276  
 Hawthorn, L. R., 344  
 Hay, R. C., 168  
 Haye, K. A., 368  
 Haylett, D. G., 212  
 Haynes, J. L., 138, 169, 249  
 Hays, O. E., 134, 172  
 Hayward, H. E., 280  
 Hazen, L. E., 350  
 Headington, R. C., 390  
 Heady, E. O., 17  
 Hearn, W. E., 387  
 Heasman, W. S., 250  
 Heeger, E. F., 299  
 Heggeness, H. G., 282  
 Heiberg, S. O., 331  
 Heidecker, L., 272, 346  
 Hein, M. A., 250  
 Heinicke, A. J., 109, 314, 315  
 Heinrich, F., 89, 189, 264  
 Heinrichs, D. H., 378  
 Heinze, E., 25  
 Heinze, P. H., 197  
 Heisig, C. P., 393  
 Helgeson, E. A., 227, 228, 232  
 Hell, W. F. van, 306  
 Heller, V. G., 347  
 Hellman, N. N., 26, 28, 91  
 Hellmers, J. H., 126  
 Hellström, P., 254  
 Helm, C. A., 264  
 Helmke, G., 216  
 Hely, F. W., 236, 259  
 Henderson, M. T., 69  
 Henderson, R. G., 196, 297  
 Henderson, W. J., 46  
 Hendricks, H. E., 260

# AUTHOR INDEX

- Hendricks, J. W., 164
- Hendricks, R. H., 260
- Hendricks, S. B., 20, 27, 28, 32, 204
- Hendrickson, A. H., 88, 90, 101, 311, 312, 316
- Hendrickson, B. H., 17, 162
- Henry, A., 373
- Hepler, J. R., 347
- Herrera, J. M. A., 117
- Herrero Egaña, M., 361
- Herriott, R. I., 401, 402
- Herrmann, C., 74
- Herrmann, R., 67, 75, 76, 77, 78, 79, 81, 96, 358
- Hershey, J. W., 338
- Hervey, R. J., 146
- Hess, E., 106
- Hessler, L. E., 278
- Hester, J. B., 57, 347, 348, 349, 387
- Hetterschij, C. W. G., 52, 72
- Heuser, W., 243, 359
- Hewes, L., 388
- Hewitt, A. C. T., 210
- Heylen, C. L. P., 303
- Heyne, E. G., 184
- Heyns, O. S., 375
- Hibbard, A. D., 258, 391
- Hibbard, P. L., 182
- Hickman, C. J., 232
- Hide, J. C., 110, 113, 115
- Higbee, E. C., 266
- Higgins, B. B., 318
- Higgins, F. H., 17
- Hightower, L. E., 17
- Hildebrand, A. A., 328, 329
- Hildebrandt, B., 310
- Hill, H. H., 336
- Hilgeman, R. H., 322
- Hill, A. V., 297
- Hill, H., 314, 343
- Hill, H. E., 205
- Hill, H. H., 212, 247
- Hill, H. O., 135
- Hill, R. A., 173
- Hill, R. B., 244
- Hill, W. L., 204, 205
- Hills, G. A., 154
- Hilmy, M., 372
- Hinckley, F., 319
- Hind, R. R., 284
- Hinkle, D. A., 22, 260, 276
- Hinrichs, H., 98
- Hirano, T., 349
- Hirschfeld, E., 401
- Hirst, C. T., 43, 289
- Hissink, D. J., 34, 35
- Hitchcock, A. E., 184
- Ho, C., 49
- Hoagland, D. R., 162, 176, 223, 348
- Hoare, A. H., 344
- Hobgood, C. G., 389
- Hoblyn, T. N., 314, 326
- Hock, A., 35, 74, 358
- Hockensmith, R. D., 156
- Hockly, T. W., 372
- Hodge, E. S., 73, 347
- Hodge, W. H., 381
- Hodgen, W. R., 66
- Hodges, E. M., 253
- Hodgkiss, W. S., 57, 58, 77, 80, 262
- Hodgson, R. E., 255
- Hodgson, R. W., 325, 326
- Hoed, F., 300
- Høeg, O. A., 405
- Hofer, A. W., 93, 351
- Hoffman, M. B., 316
- Hoffmann, W., 56, 61
- Hofmann, U., 26
- Hofmeyr, J. H., 160, 280
- Hoge, W. G., 97
- Holben, F. J., 239
- Holford, G. H., 205
- Hollands, H. F., 393
- Hollar, V. E., 187
- Holliday, R., 357
- Hollowell, E. A., 246, 262, 385
- Holmes, C. H., 225
- Holmes, J. B. S., 207
- Holmes, R. S., 56, 387
- Holsoe, T., 333
- Holzman, B., 102
- Hommel, R. F., 272
- Hoogland, J. J., 284
- Hoon, R. C., 65, 83, 236
- Hooton, D. R., 279
- Hoover, C. D., 95, 264
- Hoover, M. D., 103
- Hoover, S. R., 147
- Hope, E. C., 379
- Hope, J. G., 341
- Hopkins, D. P., 174, 177
- Hopkins, E. S., 134

# AUTHOR INDEX

- Hopkins, H. T., Jr., 333
- Hopkins, J. A., 17
- Hopkins, J. C. F., 306
- Hopkins, J. M., 211, 214
- Hopkins, J. S., 356
- Hoppe, T. C., 200
- Hopper, T. H., 262, 392
- Hore, H. L., 131
- Hornby, H. E., 230
- Hornby, R. M., 138
- Horne, F. R., 357
- Horner, C. K., 145
- Horner, G. M., 134, 135
- Horning, E. S., 151, 153
- Horrall, N., 236
- Horth, C. J., 68
- Horton, C. R., 34
- Horton, H. A., 293, 379
- Horton, R. E., 103, 104
- Hosaka, E. Y., 404
- Hosika, N., 282
- Hosika, T., 365
- Hosking, H. R., 374, 389
- Hosking, J. S., 27, 47, 92, 403
- Hough, A. F., 331
- Hough, G. J., 404
- Houghland, G. V. C., 199, 272
- Housel, W. S., 21
- Hovgard, A., 363
- How, J. E., 338
- Howard, A., 37
- Howard, F. L., 231
- Howard-Jones, G., 370
- Howes, F. N., 308
- Howie, J. B., 102
- Hoyos, A. [de Castro], 21, 117, 361
- Hseung, Y., 243
- Hsiung, Y., 157
- Hubbell, D. S., 130, 173, 250
- Hubble, G. D., 402
- Huber, G. A., 225, 260
- Hubert, H., 131
- Hubert, K., 345
- Huberty, M. R., 101, 105, 288, 319
- Hübner, W., 358
- Hudig, J., 218
- Hudson, A. W., 171
- Hudson, S. C., 380
- Huelsen, W. A., 241
- Hufnagl, H., 167
- Hughes, C. W., 193
- Hughes, D. Q., 147
- Hughes, R. C., 81
- Huitema, W. K., 371
- Huizinga, T. S., 268
- Hukuda, S., 322
- Hulač, V., 330
- Hull, J. F., 145
- Hulpoi, N., 210
- Humbert, R. P., 26, 28, 29
- Hume, A. N., 160, 391
- Humphries, E. C., 299
- Hunsaker, H., 111
- Hunter, A. S., 260
- Hunter, J. G., 226, 349
- Hunter, J. H., 258, 323
- Huntley, G., 307
- Hurd, E. B., 393
- Hurd-Karrer, A. M., 232, 233
- Hursh, C. R., 103, 107
- Hurst, L. A., 285, 286
- Hurutani, S., 82
- Hurwitz, C., 53
- Hustrulid, A., 150
- Husz, B., 315
- Hutcheon, W. L., 108
- Hutcheson, T. B., 249, 251, 258, 265, 294
- Hutchings, C. D., 264
- Hutchins, A. E., 343
- Hutchins, W. A., 220
- Hutchinson, R. C., 403
- Hüttel, R., 143
- Hutton, C. E., 82
- Hutton, C. O., 92
- Huyskes, J. A., 350
- Hwang, S. T., 245
- Hyam, G. N., 403
- Hynam, C. A. S., 381
- Hyslop, G. R., 231

## I

- Iengar, N. G. C., 75
- Ignatieff, V., 80
- Ikedo, M., 282, 365
- Il'in, S. G., 301
- Iljin, W. S., 224
- Imanishi, A., 263
- Inadome, T., 282
- Inagaki, T., 365, 366
- Indra, M. K., 24
- Ingham, A. G., 134

# AUTHOR INDEX

- Ingham, G., 44, 45, 176, 208  
 Ingle, P. M., 109  
 Ingram, J. M., 349  
 Innes, R. F., 125, 211, 241, 269  
 Ionescu, I., 49, 50, 85  
 Ionescu-Sișești, G., 364  
 Iosava, V. V., 213  
 Iovenko, N. G., 136  
 Ippisch, F., Jr., 381  
 Ireland, C. F., 258, 259  
 Irvin, C. J., 199  
 Irvine, L. O. F., 376  
 Irving, M., 306  
 Isaac, W. E., 212  
 Isaacs, T. L., 33  
 Isakova, A. A., 139, 146  
 Ishibashi, M., 109  
 Isler, E. J., 393  
 Israelsen, O. W., 173  
 Itallie, T. B. van, 42, 52, 94, 290  
 Itano, A., 123  
 Ito, H., 116  
 Ivanchenko, F. L., 109  
 Ivanov, D., 56  
 Ivanov, D. N., 73, 80  
 Ivanov, V. K., 302  
 Ivanov, V. M., 195  
 Ivanova, E. N., 123  
 Iversen, K., 186, 209  
 Iverson, V. E., 270  
 Ives, R. L., 247  
 Ivitsky, A. I., 104  
 Iwata, T., 234  
 Iwersen, J., 190  
 Iyer, K. S., 188  
 Iyer, P. V. K., 69, 70  
 Iyer, S. S., 69  
 Iyer, S. V., 188
- Jack, H. W., 404  
 Jack, R. W., 296  
 Jacks, G. V., 60, 112, 135, 180  
 Jackson, L. W. R., 225  
 Jackson, M. L., 26, 28, 31, 91  
 Jacob, A., 26, 29, 67, 89, 126, 176, 193, 222, 253, 257, 270, 272, 290, 321  
 Jacob, E., 100  
 Jacob, K. D., 162, 198, 200, 201, 202, 204
- Jacob, W. C., 342, 347  
 Jacobi, M., 78  
 Jacobs, W. C., 115  
 Jacobson, H. G. M., 172, 194, 195, 342  
 Jacques, W. A., 248, 253, 256  
 Jain, L. C., 83  
 Jaki, M., 360  
 James, N., 93, 118, 140, 141  
 Jameson, D. H., 182  
 Jamias, J., 398  
 Jamison, V. C., 22, 56, 108, 319, 320  
 Janeković, E., 157  
 Janíček, C. G., 81  
 Janíček, G., 81  
 Janjua, N. A., 368  
 Janke, F., 197, 291  
 Jaramillo, J. H., 397  
 Jarnagin, M. P., 185  
 Järvesoo, E., 359  
 Jary, S. G., 228  
 Javillier, M., 149, 180  
 Jayasundera, E. S., 293  
 Jeffries, C. D., 22, 67, 72, 117  
 Jemison, G. M., 337  
 Jenkins, J. G., 386  
 Jenkins, P. M., 175  
 Jennings, D. S., 392  
 Jenny, H., 32, 33, 55  
 Jensch, K., 355  
 Jensen, H. L., 144, 145, 146, 147, 148, 149, 153, 198  
 Jessen, W., 334, 340  
 Jewitt, T. N., 25, 196  
 Jirkal, H. J., 396  
 Joachim, A. W. R., 44, 164, 294, 367, 368, 369  
 Jodon, N. E., 244  
 Joffe, J. S., 25, 53, 103, 114, 157, 158, 384, 385  
 Johansen, G., 147  
 Johansson, S., 109, 184  
 John, J. L., 271  
 John, K., 368  
 John, P. K., 368  
 John, R. P., 153  
 Johns, H. K., 331  
 Johns, R., 404  
 Johnsgard, G. A., 156  
 Johnson, D. A., 344  
 Johnson, E. G., 168  
 Johnson, E. M., 296

# AUTHOR INDEX

- Johnson, I. J., 70, 165  
 Johnson, J., 294, 391  
 Johnson, J. C., 324  
 Johnson, J. P., 129  
 Johnson, J. W., 132  
 Johnson, L. H., 180  
 Johnson, L. P. V., 340  
 Johnson, M., 392  
 Johnson, N. W., 166  
 Johnson, R. C., 194  
 Johnson, T. D., 385  
 Johnson, W. M., 106, 115, 132  
 Johnston, B., 286  
 Johnston, C. N., 88  
 Johnston, E. J., 401, 402  
 Johnston, F. B., 313  
 Johnston, J. C., 196  
 Johnston, J. R., 67, 113  
 Johnston, J. W., 333  
 Johnston, S., 327, 328, 391  
 Johnstone-Wallace, D. B., 137, 385  
 Jolivet, J. P., 267, 345  
 Jolly, A. L., 299, 381, 382  
 Jones, B., 128  
 Jones, B. H., 118  
 Jones, B. J., 393  
 Jones, C. A., 387  
 Jones, E., 253  
 Jones, E. T., 233  
 Jones, E. W., 228  
 Jones, G. B., 188  
 Jones, G. H. G., 165, 190, 201, 298, 374  
 Jones, H. A., 344  
 Jones, H. E., 110, 111, 179  
 Jones, H. T., 191, 222  
 Jones, J. O., 270, 271, 313, 343, 349  
 Jones, J. S., 301  
 Jones, K. L., 153  
 Jones, L. A., 170, 386  
 Jones, L. H., 327  
 Jones, L. T., 211, 213, 214, 311, 400  
 Jones, L. W., 38, 145, 146  
 Jones, M., 249  
 Jones, M. M., 17, 241  
 Jones, R. A., 292  
 Jones, R. J., 212  
 Jones, R. M., 206  
 Jones, T. H., 379  
 Jones, T. N., 130, 131, 279  
 Jones, U. S., 46  
 Jones, W. W., 325  
 Jong, W. H. de, 307  
 Joosten, J. H. L., 398  
 Jordan, H. V., 175, 278  
 Jorlin, D. F., 51  
 Joshi, K. G., 43, 107, 109, 220  
 Joshi, R. H., 107  
 Joshi, W. V., 255  
 Journe, C., 183  
 Joy, E., 391  
 Joy, E. C., 18  
 Joyce, F. de V., 372  
 Judd, B. I., 111  
 Judkins, W. P., 317  
 Jugeheimer, R. W., 184  
 Juliá, F., 293  
 Juliano, J. B., 246  
 Jung, A., 83, 84  
 Jung, E., 64  
 Jung, L., 44, 50  
 Junghänel, R., 208  
 Junker, E., 63  
 Justice, O. L., 344
- K
- Kabitzsch, A., 256  
 Kachinsky, N. A., 97  
 Kader, G. M., 124  
 Kahawita, R., 173  
 Kahn, E., 309  
 Kairy, A., 372  
 Kalashnikov, E. A., 371  
 Kalashnikova, M. M., 279  
 Kalbfleisch, W., 166  
 Kalinkevich, A. F., 309, 310  
 Kalshoven, L. G. E., 230  
 Kal'tya, A., 238  
 Kaminskaya, Sh. E., 59  
 Kammlade, W. G., 256  
 Kamoshita, Y., 366  
 Kandiah, S., 44, 368, 369  
 Kangas, L., 295  
 Kangas, L. R., 295  
 Kanitkar, N. V., 130  
 Kanivets, I. I., 114, 152, 198  
 Kano, T., 171  
 Kao, L.-M., 244  
 Kapel, F. J., 333  
 Kappen, H., 177, 193, 197, 201, 214, 217, 220, 235



# AUTHOR INDEX

- Karasev, N. K., 86  
 Kardos, L. T., 51, 113, 117  
 Kargin, V. A., 31  
 Karikka, K. J., 270  
 Karlsson, N., 34, 119  
 Karnaukhov, B. G., 161  
 Karpechenko, D. P., 86, 158  
 Karr, E. H., 230  
 Karraker, P. E., 54, 76, 198, 241, 296  
 Kaserer, H., 36, 65, 165  
 Kasparova, S. A., 300  
 Kaspirov, A. I., 111  
 Katakousinos, D. S., 124  
 Katalymov, M. V., 52, 121  
 Katsnelson, S., 218, 242  
 Katz, M., 222  
 Katsnelson, H., 140, 148, 259  
 Kawamura, K., 365, 366  
 Kawase, K., 123  
 Kawashima, R., 121, 316, 337, 365, 366  
 Kazakov, V. E., 40, 122  
 Kaziev, M. Z., 122  
 Kazin, K. P., 85, 90  
 Kearns, H. G. H., 229  
 Keaton, C. M., 51  
 Kedrov-Zikhman, O. K., 188, 190  
 Keeler, I. P., 394  
 Keen, B. A., 159, 160  
 Keese, H., 182, 233, 234, 239, 240  
 Kehoe, R. A., 55  
 Keil, G., 228  
 Keith, A., 228  
 Keith, J., 357  
 Keithan, E., 395  
 Keller, B., 49  
 Kelley, A. P., 151, 339  
 Kelley, C. W., 82  
 Kelley, J. L., 385  
 Kelley, O. J., 27  
 Kelley, W. P., 24, 28, 29, 38, 173  
 Kellogg, C. E., 154  
 Kellogg, F. H., 98  
 Kelly, J. B., 47, 178  
 Kelly, L. L., 103  
 Kelly, W. C., 272  
 Kemp, H. K., 313  
 Kemp, W. B., 42, 386  
 Kendall, R. G., 170, 171  
 Kennedy, V. D., 19  
 Kent, G. C., 287  
 Kent, N. L., 221  
 Kerbosch, M., 306  
 Kerkham, R. K., 374  
 Kerle, W. D., 303  
 Kerr, A. J., 166, 250  
 Kerr, H. W., 169, 213, 285, 401  
 Kertscher, F., 95, 214  
 Keso, L., 100  
 Kessell, S. L., 334  
 Ketkovich, V. Ya., 221  
 Keyes, M. G., 66, 183  
 Khan, A. A., 321  
 Khan Denkhov, 83, 141  
 Khariton, E. G., 198  
 Kharitonovich, F. N., 336  
 Kharlamov, V. P., 311, 313, 314, 328  
 Khatuntsev, I., 244  
 Khomenko, K. A., 41  
 Khoroshavin, B. P., 237  
 Khudiakov, Ya. P., 140  
 Khvorov, I. P., 99  
 Kibardin, R. E., 363  
 Kick, H., 81, 189  
 Kidder, E. H., 162  
 Kidner, A. W., 23  
 Kidson, E. B., 189, 316  
 Kienholz, J. R., 317  
 Kienholz, R., 116  
 Kiesselbach, T. A., 183, 243, 392  
 Kilby, W. W., 303  
 Kilmer, V. J., 172  
 Killinger, G. B., 253, 276  
 Kilpatrick, D. T., 318  
 Kimbrough, W. D., 303  
 Kime, C. D., 54  
 Kimura, K., 351  
 King, A., 260  
 King, C. J., 278, 279  
 King, H. H., 47  
 King, K. M., 153  
 King, R. M., 91  
 Kiplinger, D. C., 162, 354  
 Kirilenko, N. V., 117  
 Kirk, L. E., 226  
 Kirk, W. G., 257  
 Kirkham, D., 171  
 Kirsanov, A. T., 50, 121, 128, 188, 194  
 Kirsanova, E. E., 128  
 Kirsh, N. V., 199

# AUTHOR INDEX

- Kirshtein, F. A., 190
- Kittredge, J., Jr., 341
- Kivekäs, J., 166
- Kivinen, E., 38, 43, 96
- Klapp, E., 247, 249, 253, 273
- Klauder, G., 355
- Klauss, D., 138
- Klecheto, A. N., 310
- Klechkovsky, V. M., 202
- Kleffmann, 190
- Klein, B., 78
- Klein, G. T., 210
- Klein, V., 380
- Kleinkauf, W. A., 112
- Klemann, F., 188
- Klemme, A. W., 129
- Kligman, A. M., 231, 352
- Kliuchnikov, V. M., 35
- Klökkers, P. J., 216
- Klotz, L. J., 45, 319, 325
- Knapp, J. S., 354
- Knapp, K. H., 135
- Knickmann, E., 54
- Knight, A. T., 109
- Knight, B. H., 72
- Knippenberg, E., 79, 178
- Knoblauch, H. C., 102, 132, 169
- Knoche, W., 283
- Knott, J. C., 255
- Knott, J. E., 344
- Knutson, K., 95
- Kobayashi, M., 24
- Koblitsky, L., 230, 231
- Koch, D. E. V., 196
- Kocherina, E. I., 40
- Koesnato, 301
- Kohl, F., 358
- Kohle, F., 270
- Köhler, R., 126
- Kohlmeyer, J. B., 389
- Kohls, H. L., 300
- Kohman, E. F., 348
- Kohnke, H., 42, 89, 274, 337
- Kolarova, E. D., 79
- Kolesnikova, N. A., 144
- Kolesnikov, V. A., 98
- Koliago, S. A., 370
- Koliasev, F. E., 103, 105
- Kolodny, L., 25, 111, 132
- Kolomitsev, G. M., 220
- Kolosha, I. L., 290
- Koloskova, A. V., 120
- Komarov, N. V., 281
- Komarova, N. A., 66
- Konakov, M. K., 39
- Kondrashev, S. K., 259
- Kondrat'ev, E. V., 61
- Kong, R. W., 90
- König, F., 235
- Konishi, K., 263
- Kononova, M. M., 62, 122, 124
- Konurov, I. G., 227
- Koontz, C. R., 94
- Koperzhinsky, V. V., 65, 248, 253
- Kopitke, J. C., 340
- Koposov, I. P., 111
- Korab, I. I., 231
- Korenjako, A. I., 149
- Korneeva, N. P., 23, 143
- Korneichuk, V. D., 330
- Korol, S. S., 80
- Koroliuk, S. F., 119
- Korovatovskaia, M. K., 191
- Koshel'kov, P. N., 202
- Kosmat, H., 271
- Kosmaty, E. S., 57
- Kossar, W., 226
- Kostanick, L., 384
- Köster, P., 64
- Kostin, S. I., 115
- Kothari, D. S., 89
- Kotila, J. E., 225
- Köttgen, P., 41, 42, 44, 46, 50, 54, 203
- Koutler-Andersson, E., 24, 45, 63, 119
- Koval, P. K., 152
- Kovalev, A. M., 259
- Kovalev, F. M., 295
- Kovalevskaja, N. P., 124
- Kovda, V. A., 38, 39, 40, 124, 158, 362
- Kovrigin, S. A., 128
- Kozák, J., 330
- Kozlova, S. M., 53
- Kozlova, T. A., 209
- Kramer, A., 327
- Kramer, P. J., 102, 184, 185
- Krantz, B. A., 155, 186, 390
- Krantz, F. A., 343
- Krashennikov, N. A., 308
- Krasil'nikov, N. A., 139, 141, 147
- Kraus, J. E., 392
- Krauss, G., 158

# AUTHOR INDEX

- Kravchenko, M. A., 295  
 Kreag, K. K., 222  
 Krekow, E. A., 170  
 Kreutz, W., 163  
 Krieger, H., 339  
 Krier, A., 201  
 Kriger, R. E., 40  
 Krinbill, C. A., 28, 36  
 Krishnamurty, R. S., 75  
 Kriss, A. Y., 149  
 Kristiansson, S., 235  
 Kriukov, P. A., 79  
 Krnatić, T., 217  
 Krotova, E. A., 38  
 Kroulik, J. T., 147  
 Krügel, C., 223, 264, 272  
 Kruger, J., 214  
 Kruglova, E. K., 274  
 Krupenikov, I. A., 338  
 Krusekopf, H. H., 130, 154, 389  
 Krutikov, N. E., 290  
 Kubiena, W., 67, 91, 128  
 Kubota, T., 284, 286  
 Kucheriavskii, E. G., 335  
 Kucinski, K. J., 214, 384  
 Kucinski, K. S., 180  
 Kudriashev, V., 115  
 Kudriavtseva, A. A., 342  
 Kudriavtseva, M. A., 328  
 Kudrin, S. A., 122, 276  
 Kudzin, Y. K., 208  
 Kuhn, A. O., 42  
 Kuhn, F., 395  
 Kuhn, H., 80  
 Kühn, L., 75, 198, 206  
 Kuhn, M. L., 205  
 Kuhnke, A., 101  
 Kuhr, C. A. von Wolzogen, 20  
 Kuilman, L. W., 243  
 Kulash, W. M., 229  
 Kulkova, K. S., 106  
 Kulkarni, D. G., 367  
 Kulp, M. R., 39  
 Kumar, L. S. S., 255  
 Kumutut, E., 117  
 Kunemann, J. H., 322  
 Kunin, R., 33, 80, 114  
 Kunsman, C. H., 174  
 Kuntz, J. E., 267  
 Kunze, A., 80  
 Kuprianov, A., 217  
 Kuprianov, I., 137  
 Kuptsova, A. M., 124  
 Kuranov, V. J., 170  
 Kurapov, I. A., 123  
 Kuron, H., 84, 126, 131  
 Kurtsov, A. P., 113, 239  
 Kurth, H., 254  
 Kushnikov, V. I., 43  
 Kuska, J. B., 60  
 Kusnetsova, N. A., 256  
 Kúthy, A. von, 208, 209  
 Kutuzov, S. R., 202  
 Kuykendall, R., 388, 389  
 Kvachantiradze, A., 297  
  
 L  
 Laatsch, W., 46, 47, 122  
 Lacerda, D. T., 48  
 Lachance, R. O., 346  
 Lacroix, J., 54, 75  
 Ladejinsky, W. I., 368, 371, 398  
 Ladell, W. R. S., 283  
 Laessle, A. M., 386  
 Lafitte, J. C., 397  
 Lagunova, E. P., 122  
 Laidlaw, H., 242  
 Lajoie, P., 380  
 Lakin, H. W., 31, 51  
 Lalla, C. D., 293  
 Lamb, A. F. A., 373  
 Lamb, J., Jr., 131, 133, 137  
 Lambers, H. K., 374  
 Lambert, E. B., 351, 352  
 Lambin, A. Z., 189  
 Lambina, T. F., 189  
 Lambrecht, G. H., 392  
 Lander, P. E., 70, 74  
 Landon, R. H., 116, 328  
 Lane, E. W., 244  
 Lane, M. C., 229  
 Lange, E. G., 100  
 Langley, B. C., 134  
 Lanik, J., 81  
 Lankenau, R. F., 394  
 Lanuza, E. A., 323  
 Laplante, E., 380  
 Lapshina, A. N., 25  
 Larsen, H., 121  
 Larsen, I. F., 18  
 Larson, F., 391  
 Larsson, 251  
 Lategan, E. W., 214  
 Latham, E. E., 157

# AUTHOR INDEX.

- Lathe, F. E., 204  
 Latimer, L. P., 315, 316, 328  
 Laubscher, F. X., 212, 243  
 Laude, H. H., 163, 391  
 Laude, H. M., 178  
 Laurie, A., 151, 162, 306, 352, 354  
 Laurie, M. V., 368  
 Lauritzen, C. W., 86, 105  
 Lavollay, J., 192  
 Lavrenko, E. M., 22  
 Lawless, W. W., 221, 320  
 Lawrence, G. H. M., 344  
 Lawrence, W. J. C., 215  
 Lawry, M. R., 77  
 Laws, J. O., 131  
 Laws, W. D., 56  
 Lawson, M., 20  
 Lazarev, A. A., 277  
 Lazaro, R. C., 82  
 Lazursky, A. V., 94  
 Leach, L. D., 292  
 Leahey, A., 64, 204, 378  
 Leamer, R. W., 90, 105  
 LeBarron, R. K., 333  
 Le Beau, D. S., 25  
 Lebedev, F. K., 227, 231  
 Lebedev, I. I., 253  
 Lebedev, N. N., 330  
 Lebedev, S. I., 165  
 Lebednikov, V. I., 102  
 LeClerg, E. L., 69, 389  
 Le Compte, S. B., Jr., 88, 172, 296  
 Ledebocer, M. S. J., 305  
 Ledrle, P., 75, 76, 77, 78, 81, 199  
 Ledingham, G. A., 222  
 Lee, C. K., 80, 203, 238, 364, 365  
 Lee, W. D., 155  
 Leeper, G. W., 224  
 Leeuwen, W. van, 129  
 Lefebvre, C. L., 257  
 Lehane, J. J., 87, 257  
 Leihberg, F. H., 378  
 Lehmann, E. W., 168  
 Lehne, I., 243  
 Lehr, J. J., 179, 266, 290  
 Lehtisalo, P., 251  
 Leichsenring, J. M., 271  
 Lein, Z. Ya., 63, 64  
 Leisen, F., 74  
 Leith, B. D., 70  
 Leitzke, B., 223  
 Lemke, M., 343  
 Leniger, H. A., 215  
 Lennox, C. G., 404  
 Leonard, O. A., 279, 302  
 Leonard, L. T., 305  
 Leone, G., 334  
 Leonhardt, J., 67  
 Leonova, M. I., 309  
 Leontovitch, C., 275  
 Leopold, L. B., 104  
 Lepa, P., 363  
 Lepper, W., 193  
 Lerner, M., 194  
 Leroux, D., 142, 149, 180  
 Le Roux, J. C., 302, 312, 377  
 Lesch, W., 242, 263  
 Lesselbaum, H. R., 334  
 Lester, A. H., 283  
 Lester-Smith, W. C., 369  
 Letkovski, A. I., 106  
 Letunov, P. A., 25, 39, 362  
 Leukel, R. W., 231  
 Levadoux, L., 330  
 Levina, S., 86  
 Levine, A. K., 53  
 Levisohn, I., 338  
 Levitt, E. C., 321, 402  
 Levy, E. B., 248  
 Levykh, P. M., 151, 294  
 Lewcock, H. K., 329, 402  
 Lewis, A. H., 58, 234, 254, 266, 281  
 Lewis, F. H., 315  
 Lewis, I. G., 357  
 Lewis, J. C., 181  
 Lewis, J. N., 380  
 Lewis, M. R., 172, 316, 393  
 Lewis, R. D., 258, 323  
 Lezhva, V. V., 120  
 Li, L. Y., 106, 130  
 Liakhov, A. I., 370  
 Liamina, A. N., 28  
 Libby, J. A., 135  
 Lichkov, B. L., 157  
 Lichtenberg, P., 197  
 Liebermann, J., 396  
 Liebig, G. F., Jr., 222, 318, 319, 320  
 Liesegang, H., 193  
 Lightfoot, L. C., 250  
 Ligon, W. S., 332, 336  
 Lijftogt, G., 310

# AUTHOR INDEX

- Lill, J. G., 163, 288  
 Lillard, J. H., 134  
 Lilleland, O., 224, 312, 318  
 Limstrom, G. A., 332, 333  
 Lincoln, C., 260  
 Lincoln, R., 305  
 Lind, C. J., 144  
 Lind, E. M., 356  
 Lindenbein, W., 22  
 Lindner, R. C., 315, 317  
 Lindquist, B., 154, 228  
 Lindsay, R., 357  
 Lindsay, W. R., 322  
 Lindstrom, H. V., 180  
 Lineberry, R. A., 329, 387  
 Linehan, P. A., 353  
 Linford, M. B., 139  
 Ling, A. W., 253  
 Link, C. B., 352  
 Lint, H. C., 102, 169  
 Linton, G. M., 340  
 Lipman, C. B., 150  
 Lipman, J. G., 384  
 Lippi-Boncambi, C., 360  
 Little, S., Jr., 156  
 Litzemberger, S. C., 232  
 Liu, H. P., 365  
 Liubarskaia, L. S., 196  
 Liubinsky, N. A., 236  
 Liutsernova, G. A., 128  
 Livermore, J. R., 268  
 Liverovsky, Yu. A., 362, 371  
 Lliwerant, J., 360  
 Llorente, T. A., 361  
 Llosa, C. B., 226, 275  
 Lobanova, T. A., 236  
 Lochhead, A. G., 93, 138, 139  
 Locke, S. S., 332  
 Locket, G. H., 87  
 Loewen, P. R., 131  
 Logan, K. H., 20  
 Loginov, B. L., 102  
 Logvinova, Z. V., 208  
 Longley, W. V., 380  
 Longnecker, T. C., 189  
 Loock, E. E. M., 322  
 Loomann, H., 24, 26, 30, 67, 89, 108, 177  
 Loomis, H. F., 308  
 Loomis, W. E., 66  
 Loosjes, R., 32  
 Loosli, J. K., 257  
 Lopato, Yu. G., 248  
 López-Rubio, F. B., 291  
 Lopteva, A. A., 238  
 Lorch, W., 50  
 Loree, R. E., 328  
 Lorenz, O. A., 179, 267, 346  
 Lorenz, R., 369  
 Lorenz, R. W., 332  
 Lott, R. V., 318  
 Lotthammer, R., 223, 272  
 Loureiro, S. M. de, 144  
 Lovvorn, R. L., 256, 386  
 Lowdermilk, W. C., 365  
 Lowe, B. A., 370  
 Lowenhaupt, B., 303  
 Lowndes, A. G., 400  
 Löwy, H., 124  
 Loyzianskaia, M. S., 149  
 Lucas, R. E., 37, 42, 81  
 Lucchetti, E., 181  
 Lucv, A. B., 257, 298, 304  
 Ludbrook, W. V., 236, 340  
 Ludecke, H., 207, 242, 263  
 Ludi, W., 35  
 Ludwig, C. A., 147, 258  
 Lueg, 291  
 Lukovnikov, E. K., 299  
 Luna, J. T., 70  
 Lundblad, K., 46, 247  
 Lundegårdh, H., 24, 32, 33, 73, 95  
 Lundell, C. L., 381  
 Lundqvist, G., 363  
 Lunin, J., 82  
 Lunn, W. M., 294  
 Lunt, H. A., 66, 84, 332  
 Lupinovich, I. C., 309  
 Lusanandana, B., 245  
 Lut, F. A., 164, 290  
 Luthra, J. C., 278  
 Lutman, B. F., 315  
 Lutz, H. J., 20, 86, 156, 331, 333  
 Lutz, J. F., 105, 110, 113  
 Lutzenberger, 301  
 Lyford, W. H., Jr., 132, 157  
 Lyman, C., 329  
 Lynch, P. B., 188, 205, 253, 254, 268  
 Lynch, S. J., 322, 325, 326  
 Lyness, W. E., 392  
 Lyon, A. V., 173, 403  
 Lyon, C. B., 348  
 Lyssenko, T. D., 309

# AUTHOR INDEX

## M

- Ma, R. H., 70  
Mabry, B., 31  
McAdams, W. N., 18  
McAmis, J. C., 155  
McAniff, J. D., 401  
McBride, G. McC., 380  
McBride, M. A., 380  
McCall, A. G., 135  
McCalla, T. M., 82, 110, 111, 140, 142, 161  
McCallum, A. W., 222  
McCallum, R. D., 173  
McCallum, W. B., 308  
McCann, J. McC., 280  
Maccini, L., 42  
McClellan, G., 78  
McClelland, C. K., 258  
McClendon, J. W., 252  
McClure, G. M., 157  
McCollam, M. E., 317, 320  
McComb, A. L., 333, 337, 339  
McConkey, O., 251  
McCool, M. M., 143, 197, 214, 218  
McCorkle, J. S., 387  
McCormick, D. R., 79  
McCreary, C. W. R., 299  
McCreary, D., 100  
McCubbin, E. N., 268  
McCue, C. A., 318  
McCullough, H., 353  
McDiarmid, R. W., 135  
McDole, G. R., 17  
McDonald, A., 382  
McDonald, J., 369  
McDonald, J. A., 299  
McDonald, W. J. B., 403  
McDougal, A. R., 356  
McEvoy, E. T., 293  
Macey, H. H., 27  
McGarr, R. L., 279  
McGeorge, W. T., 22, 38, 39, 94, 166, 190  
MacGillivray, J. H., 87  
McGregor, W. G., 281  
McHargue, J. S., 50, 57, 58, 73, 77, 80, 240, 262, 347  
McHatton, T. H., 353  
McHenry, J. R., 98, 112  
McIlroy, R. J., 249  
McIlvaine, T. C., 390  
McIlvante, S. K., 248  
MacIntire, W. H., 51, 53, 55, 83, 187, 188, 189, 190, 199, 202, 203, 205, 206  
M'Intosh, T. P., 268  
McIntyre, A. C., 154  
McIntyre, E. R., 295  
McIntyre, G., 249  
MacIsaac, F. M., 281  
Mack, W. B., 94, 95, 96, 221, 348, 349  
McKaig, N., Jr., 61, 174, 285  
MacKay, J. H., 127, 375  
McKay, R., 282  
Macke, W., 291  
McKee, M., 338  
McKee, R., 213, 264, 265, 266  
McKelvey, V. E., 91  
McKeon, B. F., 402  
McKibben, E. G., 17  
McKibbin, R. I., 214  
McKinnon, A. D., 399  
MacLachlan, J. D., 240, 268  
McLaughlin, J. H., 231  
McLaughlin, W. T., 167  
McLean, E. O., 55  
McLean, J. G., 267, 345  
McLees, E., 150  
Macluskie, H., 244  
McMartin, A., 211  
McMichael, C. W., 388  
McMillan, J. A., 170  
McMurtrey, M. S., 229, 293, 294  
McNair, A. D., 213  
McNair, J. B., 36  
McNail, P. E., 136  
McNamee, E. U., 293  
McNee, H., 293  
McNew, G. L., 221  
McPherson, G. K., 399  
McTaggart, A., 137  
McVickar, M. H., 57  
McWhirter, L., 267  
Madan, M. L., 236  
Madanov, P. V., 77  
Mader, E. O., 352, 353  
Madhok, M. R., 74, 198  
Mados, L., 85, 173, 372  
Madrigal, J., Jr., 398  
Maegdefrau, E., 26  
Maehl, K. A., 389  
Maes, E. E., 394  
Magistad, O. C., 31, 66, 101, 122, 173, 260

# AUTHOR INDEX

- Magness, J. R., 314, 315, 383
- Magnitsky, K. P., 186
- Magoon, C. A., 383
- Magruder, R., 350
- Maguire, B., 354
- Mahajan, L. D., 106
- Mahalanobis, P., 69
- Mahmoud, A., 39
- Mahoney, C. H., 186, 187
- Maier, W., 315
- Maiwald, K., 174, 209, 210, 214, 216, 271
- Makarova, A. F., 90
- Makeev, N. I., 124
- Makkus, W., 232
- Maksimiuk, G. P., 22
- Maksimovich, N. A., 23
- Malan, E. F., 377
- Malandin, G. A., 250, 362
- Malbieva, E. I., 294
- Maldonado, J. F., 34
- Malhotra, J. K., 83
- Malinkin, N. P., 276
- Maliuga, D. P., 56
- Maliugin, E. A., 170
- Malivaiko, Yu. S., 274
- Mallea, O., 31, 38, 81
- Mallik, A. K., 25, 104, 105
- Mallory, L. D., 380
- Malomakhova, T. A., 83
- Maloney, M. M., 168
- Maltseva, I. M., 206
- Malychin, F., 74, 78
- Mamaeva, L. Ya., 38
- Mamanina, L., 25
- Mandelson, L. F., 293
- Maney, T. J., 328
- Manilov, N., 362
- Manke, K. F., 265
- Mann, H. H., 160, 163, 358
- Manning, D. E. B., 371
- Mansfield, G. R., 383, 386
- Mansfield, W. S., 163
- Manson, P. W., 265
- Mantel, E., 141, 178, 344
- Manuele, R. L., 77
- Manzon, E. D., 79
- Maplestone, C., 212
- Marais, A., 376
- Mafan, B., 332
- Marani, M., 237
- Marcello, L. S., 53
- Marcovitch, S., 231
- Marcum, W. B., 88
- Marcus, A., 275
- Marel, H. W. van der, 27, 398
- Margolina, K. P., 343
- Marie, V., 396
- Marino, A., 70
- Marks, J. B., 155
- Marks, R., 81
- Marquardt, A., 96
- Marriott, W. M., 358
- Marsden, A. W., 79, 139
- Marsh, R. H., 325
- Marsh, R. P., 179
- Marshall, C. F., 25, 26, 28, 29, 30, 36, 84, 91, 157, 158
- Marshall, C. G., 167
- Marshall, H. L., 204, 205, 206
- Marshall, J. B., 38
- Marshall, T. J., 87
- Marshburn, A. R., 326
- Marsh-Smith, E. C., 298
- Marten, E. A., 141
- Martens, P., 199
- Marth, P. C., 339
- Martin, A. E., 188
- Martin, C. J., 58
- Martin, E. V., 303
- Martin, J. P., 111, 112, 133, 213, 215, 216, 285
- Martin, T. L., 152
- Martin, W. E., 322
- Martin, W. J., 274
- Martin, W. P., 38, 112, 124, 143
- Martin, W. S., 111, 114
- Martinec, T., 35
- Marton, L., 26
- Marx, A., 364
- Maschhaupt, J. G., 172
- Maschfield, G. B., 135, 256
- Mashtakov, S. M., 309
- Mason, I. C., 327
- Materova, E. A., 33
- Mather, K., 162
- Mather, M., 162
- Mathews, O. R., 165
- Mathur, R. N., 284, 287
- Mathy, W., 30
- Matskevich, V. V., 75
- Matson, H., 172
- Matthews, E. D., 44, 277
- Matthews, E. M., 259, 294
- Matthews, R. B., 208
- Matthews, T. M., 334

# AUTHOR INDEX

- Mattingley, G. H., 403  
 Mattson, S., 24, 31, 34, 45, 63, 118, 119, 121  
 Maunsell, P. W., 77  
 Maurmann, G., 213, 281  
 Mavrodineanu, R., 34, 84, 85  
 Mayer, A., 183  
 Mayernik, J. J., 384  
 Mayhugh, M. S., 173  
 Maynard, B. E., 393  
 Maynard, L. A., 42  
 Mayne, W. W., 305  
 Mayton, E. L., 227, 252, 388  
 Mazaeva, M. M., 281  
 Mazé, P., 180  
 Mazé, P. J., 180  
 Meadly, G. R. W., 205, 326  
 Meadows, H. J., 288  
 Meahl, R. P., 352  
 Means, R. H., 167  
 Mech, S. J., 160  
 Meck, W. E., 17  
 Mehlich, A., 33, 84  
 Mehta, M. L., 39, 40  
 Meier, K., 187, 310, 312, 313, 315  
 Meijer, C., 208  
 Meiklejohn, J., 143  
 Melchers, L. E., 225  
 Melentiev, B. N., 363  
 Melhus, I. E., 231, 287  
 Mello, P. C. de, 194  
 Melnikov, A., 203  
 Melsted, S. W., 71  
 Melville, R., 120, 191  
 Melvin, E. H., 174  
 Melvin, J. K., 337  
 Mendes, J. E. T., 299  
 Mercer, A. D., 167  
 Mercer, S. P., 353  
 Merdian, B., 375  
 Meredith, D., 251, 252  
 Meredith, W. O. S., 242  
 Merkle, F. G., 47, 68, 72, 106, 110, 113, 355  
 Merrill, S., Jr., 303  
 Merrill, T. A., 327  
 Mershin, A. P., 370  
 Merz, A. R., 196, 197  
 Metcalfe, C. R., 222  
 Metson, A. J., 85  
 Metzén, O. von, 75, 76, 77  
 Metzger, W. H., 46, 113, 118, 186  
 Meulen, E. V., 249  
 Meurice, R., 91, 202  
 Meyer, C., 273  
 Meyer, L., 54, 61, 63, 154, 167, 199  
 Meyer-Hermann, K., 292  
 Miah, A. H., 157  
 Michael, G., 51, 63, 65, 180, 198, 200, 202, 206, 221, 272, 296, 346  
 Mick, A. H., 88  
 Mickelson, E. B., 21  
 Midgley, A. R., 46, 47, 52, 188, 190, 191, 194, 210, 251, 259, 384  
 Midha, D. C., 101  
 Miège, E., 301  
 Migulina, V. M., 149  
 Mikhailov, D. Ya., 246  
 Mikhailov, N. N., 310  
 Mikhailov, V. P., 268, 273  
 Milad, Y., 372  
 Milam, F. M., 89, 110, 169  
 Mileff, D. P., 64  
 Miles, E. F., 91  
 Miles, H. W., 228  
 Miles, I. E., 74  
 Millar, C. E., 51, 115, 130, 176, 186, 187, 267, 291, 390  
 Millard, W. A., 226  
 Miller, E. V., 162, 204  
 Miller, H., 199  
 Miller, H. F., 198  
 Miller, J., 221  
 Miller, J. C., 303  
 Miller, L. B., 128  
 Miller, S. R., 384  
 Miller, V. L., 255  
 Millikan, C. R., 235, 236, 239, 282  
 Millington, A. J., 304  
 Milne, G., 38, 126  
 Milne, R. A., 130, 131  
 Milsum, J. N., 371  
 Milthorpe, F. L., 280  
 Minckler, L. S., 333, 336  
 Minges, P., 328  
 Minges, P. A., 187, 346  
 Minneman, P. G., 381  
 Minnum, E. C., 184  
 Minor, F. W., 147  
 Mira, E. A., 361  
 Mira y Sequeiros, E. A., 373



# AUTHOR INDEX

- Miriasov, Z. Z., 120  
 Miroshnichenko, K. G., 236  
 Mirskova, O. N., 209  
 Mirskova, V. M., 237  
 Mishchenko, Yu. M., 31  
 Mishustin, E. N., 111, 112, 140, 145, 150, 152  
 Misu, H., 41, 365  
 Mitchell, J., 379  
 Mitchell, J. H., 50, 308  
 Mitchell, R. B., 141, 279  
 Mitchell, R. L., 55, 58, 73, 74, 81, 192  
 Mitchell, W. K., 329  
 Mitiagina, O. V., 59  
 Mitra, A. K., 84, 244, 246, 367  
 Mitra, D. K., 30  
 Mitra, R. P., 29, 30, 36, 37, 84, 85  
 Mitscherlich, E. A., 184, 201  
 Mittelberger, H. von, 296  
 Miyake, R., 197  
 Miyasaka, S., 366  
 Miyawaki, Y., 351  
 Moats, R. W., 131  
 Modess, O., 338  
 Moen, A., 77  
 Moerdyk, J. L., 256  
 Moiseev, I. G., 40  
 Molegode, W., 369  
 Molestina, E. O., 397  
 Molino, R. H. E., 280  
 Molinary-Salés, E., 293  
 Molotkovsky, G. Kh., 143, 308  
 Momot, K. G., 300  
 Monosmith, R. O., 354  
 Monson, O. W., 250, 351  
 Montedonico, L. A., 247  
 Monteith, J., Jr., 354  
 Moodie, C. D., 145  
 Moody, J. E., 63  
 Moore, D. C., 116, 324  
 Moore, E. C., 320  
 Moore, H. I., 167, 249  
 Moore, H. R., 390  
 Moore, L. B., 212  
 Moore, R. E., 90, 100, 116  
 Moore, R. H., 382  
 Moorman, R. B. B., 34  
 Morada, E. K., 398  
 Morani, V., 360  
 Morehead, H. A., 18  
 Morgan, A., 403  
 Morgan, C. G., 158  
 Morgan, C. N., 346  
 Morgan, E. T., 183, 269  
 Morgan, M. F., 34, 71, 172, 194, 195, 217, 296, 342  
 Morgen, H., 155  
 Morgenroth, E., 160, 395  
 Morgenweck, G., 114, 254  
 Moriguchi, S., 284  
 Morison, F. L., 390  
 Morita, N., 24  
 Morita, S., 310, 366  
 Mork, E., 341  
 Moroz, E. S., 320  
 Morozov, A. S., 287  
 Morozov, S. S., 28  
 Morozova, T. M., 90  
 Morris, F. G., 356  
 Morris, F. W., 357  
 Morris, H. D., 95, 184, 324  
 Morris, H. E., 292, 391  
 Morris, O. M., 311  
 Morris, V. H., 229  
 Morrison, F. R., 302, 303  
 Morrow, E. B., 328  
 Morse, H. H., 134  
 Mortimore, M. E., 130  
 Mortlock, H. C., 391  
 Morwick, F. F., 71  
 Moser, F., 44, 46, 47, 94, 126, 179  
 Moshicky, S., 370  
 Mosolov, I. V., 237  
 Moss, E. H., 378  
 Moss, H. C., 379  
 Moubray, J. M., 320  
 Mowrey, R. G., 384  
 Moxon, A. L., 51  
 Moyer, R. T., 145  
 Moyle, A. I., 308  
 Moyse, W. J., 344  
 Mozheiko, A. M., 39  
 Mozzette, G. F., 323  
 Muckenhirn, R. J., 60, 89, 105, 172  
 Mueller, W. O., 210  
 Muenscher, W. C., 257  
 Muhr, G. R., 43, 52, 223  
 Muir, A., 356  
 Mukerji, B. K., 169, 367  
 Mukerji, P., 367  
 Mukherjee, K. C., 125, 126  
 Mukherjee, J. N., 24, 29, 30, 37, 57, 85  
 Mukherjee, M. K., 46, 75, 125

# AUTHOR INDEX

- Mukherjee, S. K., 36  
 Mulder, E. G., 97, 223  
 Mullard, S. R., 348  
 Müller, G., 265  
 Müller, H., 128  
 Müller, K., 158  
 Mulloon, V. I., 299  
 Mulvey, R. R., 264, 265  
 Mulwani, B. T., 172  
 Mumford, C. D., 19  
 Mündel, G., 184  
 Mundinger, F. G., 385  
 Munro, J. A., 229  
 Munsell, R. L., 251, 254, 260  
 Murneck, A. E., 184, 197, 258  
 Murphy, A., 393  
 Murphy, H. C., 70  
 Murphy, H. F., 48, 185, 388  
 Murray, M., 51, 58  
 Murray, S. M., 251, 252  
 Murrill, W. A., 41  
 Musgrave, G. W., 103, 110  
 Mustafa, A. M., 368  
 Mutinelli, A., 300  
 Muzychuk, I. F., 25  
 Myers, H. E., 60, 99, 110, 111,  
 113, 161, 163, 166, 184, 243,  
 256  
 Mynbaev, K., 309
- N
- Nadiarny, F. M., 248  
 Naftel, J. A., 262  
 Nafziger, J., 115  
 Nagai, S., 197  
 Nagata, M., 121, 365, 366  
 Nagata, T., 366  
 Nagel, C. M., 287  
 Nagelschmidt, G., 26, 29, 205  
 Naghski, J., 294  
 Nagornaia, V., 92  
 Nair, K. R., 69  
 Najjar, H., 370  
 Najmr, S., 121  
 Nakaidze, I. A., 127  
 Nalivkin, A., 363  
 Narain, R., 70  
 Narasimhamurty, G., 142  
 Nash, K. B., 273  
 Nash, L. B., 268, 270  
 Natal'in, N. B., 244
- Natkina, A. I., 61  
 Naundorf, G., 287  
 Nayar, M. R., 31, 34, 104, 105  
 Naylor, A. W., 255  
 Neal, D. C., 279  
 Neal, J. H., 130, 134  
 Neal, O. R., 111, 132, 133, 137,  
 138, 172  
 Nebelung, A., 358  
 Nedosekina, T. V., 130  
 Neely, J. W., 274  
 Neethling, J. C., 376  
 Neetzel, J. R., 333  
 Nehring, K., 85, 189, 234, 239,  
 242, 243, 247, 270  
 Neilson-Jones, W., 129, 339, 340  
 Neiman, G. B., 309  
 Neiswander, C. R., 229  
 Nekrasov, P. A., 97  
 Neller, J. R., 22, 23, 172, 321,  
 342  
 Nelson, C. E., 176  
 Nelson, E. W., 392  
 Nelson, H. A., 278  
 Nelson, L. B., 89, 105  
 Nelson, M., 245, 251  
 Nelson, N. T., 378  
 Nelson, R. A., 27  
 Nelson, R. C., 74, 346  
 Nelson, R. T., 233  
 Nelson, W. R., 105  
 Němec, A., 272, 334, 335, 336,  
 338, 339, 340  
 Nemysovskaia, O. V., 122  
 Nesom, G. H., 199  
 Netterstrom, R. W., 392  
 Nettles, V. F., 186  
 Nettles, W. C., 229'  
 Netto, J. E. de P., 57, 72, 183,  
 298, 394, 395  
 Neubauer, E., 95  
 Neubauer, H., 76, 95  
 Neuberger, A., 193  
 Neugebauer, E. A., 291  
 Neugebauer, V., 78, 129  
 Neuhauss, A., 265  
 Neuman, F., 266  
 Neuman, R., 396  
 Neuweiler, E., 181  
 Nevens, W. B., 255  
 Nevros, K. I., 364  
 Newbold, R. P., 255  
 Newell, J., 162

# AUTHOR INDEX

- Newell, L. C., 392  
 Newhall, A. G., 344  
 Newman, A. S., 93, 133, 140  
 Newrzella, B., 220  
 Newton, J. D., 43, 217, 379  
 Nguyen-Cong-Tien, 300  
 Nichik, M. M., 221  
 Nicholas, D. J. D., 349  
 Nicholls, W. D., 388  
 Nichols, M. L., 81, 110  
 Nicholson, H. H., 170, 171, 172, 357  
 Nicholson, R. I., 321  
 Nickels, C. B., 323  
 Nickerson, D., 21  
 Nicol, H., 96, 147, 176  
 Nicolaisen, N., 345  
 Nicolaisen, W., 192, 223, 289  
 Nicollier, V. S., 111  
 Niederhof, C. H., 132  
 Nielsen, N., 147  
 Nielson, A. B., 250  
 Niemann, W., 60  
 Nieschlag, F., 23, 191, 206, 223, 224  
 Niethammer, A., 151, 152  
 Nightingale, G. T., 178, 329  
 Nijensohn, L., 214  
 Nijhawan, S. D., 45  
 Nijholt, J. A., 204  
 Nikanorova, N. N., 81  
 Nikiforoff, C. C., 26, 29, 73, 109, 156, 157  
 Nikitin, S. A., 123, 371  
 Niklas, H., 59, 72, 94, 96, 97  
 Nikolitch, S., 143  
 Nikol'sky, B. P., 25, 32  
 Nikolsky, N. N., 36, 109  
 Nilsson-Leissner, G., 257, 363  
 Nipal, S., 292  
 Nisikado, Y., 351  
 Nitsche, H., 206  
 Nitzsch, W. von, 30, 99  
 Nixon, H. L., 205  
 Noggle, G. R., 49, 72, 100  
 Nogtev, V. P., 257  
 Nolan, L. C., 300  
 Noll, C. F., 199, 251  
 Noll, J., 150  
 Nolla, J. A. B., 286  
 Nordengren, S., 364  
 Nores, J. G., 247  
 Norman, A. G., 49, 59, 63, 65, 83, 95, 133, 140, 150, 177, 263, 390  
 Norris, R. V., 369  
 Norton, E. A., 133, 155  
 Norton, R. A., 18, 160  
 Norval, R., 256  
 Nostitz, A. von, 117, 193  
 Nottingham, R. J., 112  
 Novak, A. G., 120  
 Novák, V., 115, 360  
 Novitsky, M. D., 291  
 Nowosad, F. S., 246  
 Nozhin, L. L., 362  
 Nuckolls, A. H., 197  
 Nuckols, S. B., 288, 390  
 Nugent, T. J., 273  
 Nutman, F. J., 68  
 Nutt, G. B., 18  
 Nutting, P. G., 29  
 Nydahl, F., 56, 76  
 Nyhus, P. O., 396  
 Nylund, R. E., 116

O

- Oakley, K. P., 357  
 Obenshain, S. S., 99, 158, 213, 254, 267, 386  
 Oberholzer, P. C. J., 321  
 Obolenskaia, L. I., 43, 120  
 O'Brien, R. E., 254  
 O'Brien, T. E. H., 308, 369  
 Ocampo, J. A., 264, 396  
 O'Connor, R. T., 174  
 Odell, R. T., 60, 390  
 Odintsova, S. V., 45  
 Odland, M. L., 161  
 Odland, T. E., 193, 198, 255, 342  
 Oelsen, H. v., 240  
 Oertel, A. C., 183  
 Oganesian, A. P., 109  
 Ogden, W. B., 294, 391  
 Ogg, C. L., 31, 82  
 Ogg, W. G., 355, 356  
 Ogilvie, L., 224, 343  
 Okác, A., 77  
 Okada, M., 287  
 Okawa, K., 180  
 O'Kelly, J. F., 388  
 Oknina, E. Z., 235  
 Okuda, A., 234

# AUTHOR INDEX

- Oldershausen, E. von, 371  
 Oldershaw, A. W., 115, 164, 189, 265, 350, 351  
 Oliphant, J. N., 154, 373  
 Oliver, F. W., 131, 167  
 Olmstead, L. B., 99  
 Olofsson, S., 254  
 Olovianishnikov, G. I., 38  
 Olsen, S. R., 72  
 Olson, F. R., 143, 146, 149, 165  
 Olson, L. C., 35, 37, 41, 77, 96, 197, 201, 241, 275, 276, 301, 386  
 Olson, O. E., 51, 233  
 Olson, P. J., 242  
 Omel'chuk, A. V., 152  
 O'Neal, A. M., 21  
 Onikhova, K. Ya., 99  
 Oosting, W. A. J., 19, 158  
 Opitz, K., 160, 178, 213, 234, 265, 274, 281  
 Oraman, N., 369  
 Orchard, E. R., 261  
 Orlovsky, N. V., 38, 123, 124  
 Orman, A. C., 346  
 Orth, H., 270  
 Orvedal, A. C., 155, 156  
 Osmond, D. A., 292, 312  
 Ostapenya, P. V., 220  
 Osvald, H., 232  
 Ovechkin, S. K., 238  
 Overbeck, F., 118  
 Overholser, E. L., 311, 314, 393  
 Overley, F. L., 311, 314  
 Overstreet, R., 32, 33  
 Owen, A. E., 358  
 Owen, R. C., 400  
 Ozawa, S., 322
- P
- Paauw, F. van der, 206  
 Paddick, M. E., 308  
 Paden, W. R., 275  
 Padwick, G. W., 351  
 Page, J. B., 29, 38, 53, 72  
 Page, N. R., 324  
 Pain, A. K., 245  
 Painter, J. H., 303  
 Painter, R. H., 229  
 Paiva Neto, E. C., 80  
 Paiva Neto, J. E. de, 84, 85, 394  
 Palacios, E. A., 351  
 Palacios, G., 44  
 Palaweew, T., 64  
 Palit, B. K., 282  
 Pallesen, J. E., 163  
 Pallmann, H., 23, 93, 121, 271  
 Palmer, A. E., 378  
 Palmer, E. F., 311  
 Palmer, R. C., 317  
 Palmer, R. G., 345  
 Palmer, V. J., 103  
 Palti, J., 221  
 Pandit, U. P., 25  
 Panfilov, Ya., 335  
 Pang, K. K., 190  
 Pannikov, V. D., 120  
 Panosian, A. K., 198  
 Panova, A. V., 31  
 Panse, V. G., 71  
 Pant, N. N., 65, 143  
 Papadakis, J. S., 30, 69, 87, 98, 164, 236, 287  
 Pape, H., 299  
 Paramonova, V. I., 31, 32, 33  
 Parbery, N. H., 142, 351  
 Parham, B. E., 404  
 Parham, B. E. V., 404  
 Parham, S. A., 387  
 Parham, W. L., 404  
 Parisinos, C. C., 381  
 Parker, E. R., 184, 321  
 Parker, J. S., 134  
 Parker, M. M., 187, 350  
 Parks, R. O., 52, 77  
 Parodi, L. R., 395  
 Parr, C. H., 367  
 Parris, G. K., 325  
 Parrish, P., 174, 187  
 Parsche, F., 266  
 Parson, H. E., 323  
 Paschall, A. H., 133  
 Pascual, A., 383  
 Partridge, N. L., 67, 88, 102, 184, 311  
 Paterson, W. G. R., 355  
 Patiño, L. R., 380  
 Paton, R. R., 336  
 Patry, L. M., 95  
 Patty, R. L., 89  
 Patwardhan, N. K., 127  
 Patzer, W. E., 331, 336  
 Paul, H. J., 357  
 Paul, M., 57, 312

# AUTHOR INDEX

- Paul, W. R. C., 164, 302, 304, 305
- Paull, A. E., 236
- Paulsen, E. F., 157, 214, 215, 395, 396
- Paver, H., 268
- Pavlovski, G., 34, 49, 85
- Pavlovsky, M. A., 120
- Pavlychenko, T. K., 114, 226, 232
- Pchelkin, A. A., 53
- Pchelkin, V. U., 53, 281
- Pchelkina, G. A., 281
- Pearce, S. C., 311
- Pearsall, W. H., 356
- Pearse, A. S., 333
- Pearson, R. W., 48, 49, 50
- Pechanec, J. F., 228
- Peck, E. F., 374
- Pecora, E. J., 91
- Peczniak, J., 208
- Peech, M., 34, 42, 66, 71, 84, 85, 189, 191
- Peele, T. C., 18, 112, 127, 162
- Peavy, W. J., 43, 59, 135
- Peive, Ya. V., 166, 280, 281
- Pelišek, J., 55, 57, 59, 330, 359, 360
- Penders, J. M. A., 194, 398
- Pendleton, R. E., 290
- Pendleton, R. L., 127, 128, 133, 166, 230, 371, 398
- Penfold, A. R., 302, 303
- Peng, C., 35
- Peniston, J., 376
- Penman, F., 295, 402, 403
- Penman, H. L., 102, 115, 171
- Penningsfeld, F., 159
- Pentz, J. A., 375
- Penzhorn, K. E. W., 215, 375
- Pepkowitz, L. P., 68
- Peralta, F. de, 190
- Peralta, P. E., 396
- Percival, G. P., 315, 385
- Peredery, F. G., 114
- Pereira, H. C., 160, 268
- Perekalsky, F. M., 222
- Peresvetov, A. S., 330
- Pérez, H. M., 168
- Perez, R., 296
- Perkins, A. T., 47
- Perkins, W. R., 251
- Perlmutter, F., 328
- Perold, I. S., 214, 215, 377
- Perrault, C., 346
- Perry, E. A., 384
- Perry, E. P., 86
- Pershina, M. N., 20, 137, 331
- Person, L. H., 225, 274
- Perstein, V. M., 167
- Pestov, N. E., 185
- Peterburgsky, A. V., 57
- Peterson, H. B., 143, 166
- Peterson, J. B., 67, 90, 91, 110, 113, 168
- Peterson, M. L., 150
- Petinov, N. S., 238
- Petrov, B. F., 362, 370
- Pettyjohn, W. J., 55
- Petukhov, M. P., 50
- Peuser, H., 203
- Pevehouse, H. M., 226
- Plaff, C., 233
- Plätzler, A., 298
- Pfarrer, E., 97
- Pfeil, E., 219
- Pfingsten, E., 232
- Plutzer, G., 175, 195
- Pharaon, N. H., 370
- Phelps, A. S., 144
- Phillips, D., 293
- Phillips, C. E., 348
- Phillips, M. M., 267
- Phillips, R., 167, 345
- Phillips, T. G., 269
- Phillips, W. R., 313
- Philp, R. C. T., 247
- Pickett, B., 207
- Pickett, B. S., 311, 328, 389
- Pickford, P. T. H., 273, 345
- Pickles, A., 395, 397
- Pidgeon, I. M., 133
- Pickenbrock, F., 65
- Pielen, L., 235
- Pien, C. L., 244
- Pierce, H. P., 342
- Pierce, W. C., 323
- Piercey, W. S., 169
- Pieris, W. V. D., 382
- Pierre, W. H., 45, 48, 49, 50, 55, 178, 179, 254
- Pietscher, H., 222
- Pike, K. A., 280
- Pikovskaia, R., 142
- Piland, J. R., 258, 259, 274
- Pillai, S. C., 143, 144, 162

# AUTHOR INDEX

- Pillay, K. S., 266  
Pillsbury, A. F., 101, 105, 392  
Pinck, L. A., 49, 151  
Piper, C. S., 181, 183, 223, 240, 279, 351  
Pirone, P. P., 336  
Pitner, J., 185, 195, 276, 277, 388  
Pittenger, P. M., 168  
Pittman, D. D., 89  
Pittman, D. W., 369, 393  
Pizer, N. H., 71, 224, 233  
Plakida, E. K., 330  
Plant, W., 270, 271, 343  
Platenius, H., 344  
Plath, C. V., 384  
Plavsky, G. E., 203  
Plice, M. J., 21, 82, 331  
Plotho, O. von, 337  
Plummer, B. E., Jr., 210  
Poel, J. van der, 294  
Poey, F., 283  
Poggendorff, W. H., 283  
Pohjakallio, O., 249  
Pohlman, G. G., 105, 112, 141, 251, 390  
Pokrovsky, G. I., 27, 107  
Poldermans, P. J., 216  
Poliakov, A. A., 230  
Pollard, A., 343  
Pollard, A. G., 68, 79, 82  
Pollard, N., 184  
Pollinger, W. E., 270  
Polynov, B. B., 20, 127  
Pomeroy, C. S., 383  
Pond, G. A., 390  
Ponomarev, G. M., 28, 122  
Ponomareva, V. V., 118  
Pontis, R. E., 301  
Pontovich, V. E., 142  
Poole, R. F., 318  
Popazov, D. I., 112  
Popenoe, W., 325, 380, 381, 382  
Popov, A. S., 310  
Popov, N. V., 237  
Popova, A. A., 296  
Porter, A. M., 161  
Porter, H. C., 99  
Porter, W. D., 378  
Posadas, S. S., 147  
Poschenrieder, H., 263  
Post, A. H., 164, 391  
Post, F. A., 102, 116, 134  
Post, K., 151, 352, 355  
Postnikova, E. N., 220  
Potter, G. F., 303  
Poulsen, J. F., 208  
Pound, F. J., 266, 282, 283, 299, 396  
Powell, H. R., 400  
Powers, W. L., 173, 181, 260, 267, 280, 301, 346, 393, 397  
Pozdena, L., 115, 129, 140, 217, 218, 358  
Pozzi-Escot, E., 204  
Prasad, M., 127  
Prasad, S., 306  
Praskac, L., 181  
Prasolov, L. I., 121, 123, 362, 370  
Preisich, M., 25  
Prellar, J. H., 215  
Preller, G. S., 203  
Preobrazhenskaia, M. V., 107  
Prescott, J. A., 37, 400, 401  
Pressler, H., 174  
Prest, R. L., 401  
Preston, J. F., 138  
Priianishnikov, D. N., 193  
Price, C., 288  
Price, N. O., 247  
Price, P. M., 168  
Pridham, A. M. S., 336  
Prince, A. L., 52, 186, 195, 213, 216  
Prince, F. S., 60, 241, 269, 270, 385  
Prints, Ya. I., 153  
Pritsker, N. Ya., 114  
Probst, A. H., 264  
Proby, R. G., 357  
Proebsting, E. L., 129  
Proissl, A., 67  
Prokoshev, V. N., 180, 193, 217  
Pronchenko, V. F., 340  
Proshkina-Lavrenko, A. I., 124  
Proskura, S., 282  
Protasov, P. V., 277  
Prunty, M., Jr., 384  
Pryor, D. E., 225  
Pubols, B. H., 393  
Pucher, G. W., 296  
Pudova, E., 281  
Puffeles, M., 35, 117  
Pugh, S. G., 380  
Puh, Y. C., 228  
Punyasingha, T., 263

# AUTHOR INDEX

- Purdy, A. W., 344  
Puri, A. N., 91, 109  
Puri, B. R., 91  
Purvis, E. R., 71, 138, 187, 343, 383  
Pushkinskaia, O. I., 112, 150  
Pushkinskaia-Kuplenskaia, O. I., 371  
Pustovoitov, N. D., 35  
Putnam, D. F., 379  
Putt, E. D., 304
- Q
- Quarré, P., 166  
Quayle, W. L., 40  
Quesenberry, J. R., 250
- R
- Raalte, M. H. van, 244  
Rabinerson, A. I., 25  
Rabochev, I. S., 274, 277  
Rabotnov, T. A., 41, 251  
Rabotnova, I. L., 146  
Radchenko, A. G., 185  
Radczewski, O. E., 27  
Radel, L. H., 228  
Radcliff, H., 305  
Rademacher, B., 192, 223, 239, 334  
Rader, L. F., Jr., 80, 174, 175, 204  
Radu, I. F., 33  
Rac, C. J., 373  
Racburn, C., 369  
Ragland, C. H., 331  
Rahn, E. M., 186, 342  
Rai, B., 109  
Raleigh, G. J., 267, 343  
Ram, G., 25  
Raman, P. K., 221  
Ramdas, L. A., 25, 105  
Ramnath, B., 404  
Ramos, C. M., 246  
Ramser, C. E., 136  
Randell, P. C., 373  
Randolph, J. W., 274  
Rankin, W. H., 164  
Ransome, F. H., 220  
Rao, A. S., 130  
Rao, K. A. N., 216  
Rao, V. R., 127  
Rapson, A. M., 212  
Ratera, E. L., 269  
Rather, H. C., 288, 300  
Rathje, W., 47  
Ratnaparkhe, A. D., 308  
Ratner, E. I., 40, 46, 57  
Ratsek, J. C., 36, 352  
Rautenberg, E., 74, 79, 177, 178, 209, 239, 256  
Ravich, M. B., 192  
Rawitscher, F., 332  
Rawl, E. H., 317  
Rawlins, W. A., 273  
Ray, S. P., 29, 30  
Raychaudhuri, S. P., 29, 30, 46, 59, 125, 126, 157  
Raymond, L. C., 255  
Raymond, P. E., 21  
Rayner, D. S., 319  
Rayner, G. B., 251  
Rayner, M. C., 215, 333, 338  
Raynor, R. N., 230, 231  
Rayns, F., 212  
Read, F. M., 403  
Read, H. A., 306  
Ready, D., 293  
Rebour, H., 312  
Reder, R., 267  
Red'kin, N. E., 114  
Redlich, G. C., 67  
Ree, W. O., 167  
Reed, C. A., 383  
Reed, H. S., 182  
Reed, J. F., 44, 73  
Reesema, N. H. S. van, 218  
Reeve, E., 52, 179  
Reeve, J. O., 88  
Rege, R. D., 216, 284, 285, 286  
Regeimbal, L. O., 314, 315  
Regel, C., 360  
Rehling, C. J., 220  
Reichart, M. A. L., 157, 396  
Reid, E. H., 137  
Reid, F. R., 196, 204  
Reid, J. J., 294, 295  
Reifenberg, A., 370  
Reihling, K., 266  
Reimers, F. E., 177  
Reinau, E. H., 86, 291  
Reinfeld, E. A., 21  
Reinhardt, F., 214

# AUTHOR INDEX

- Reinhold, J., 94, 150, 161, 214,  
218, 347  
Reinmuth, E., 273  
Reisenauer, H. M., 258  
Reitemeier, R. F., 66, 73, 83  
Remezov, N. P., 119, 335  
Remy, T., 290  
Rennenkampff, E. von, 183  
Repp-Nowosad, G., 351, 360  
Reschke, J., 270  
Retter, G. R., 383  
Retzger, J. L., 112, 124  
Reuther, W., 54, 313, 314, 315,  
317  
Reynolds, D. S., 204  
Reynolds, E. B., 43, 257, 278  
Rheinwald, H., 291, 359  
Rhind, D., 244  
Rhoad, A. O., 251, 395  
Rhoades, H. F., 98, 117, 391  
Riabov, V., 275  
Ribeiro, R., 397  
Rice, M. A., 308  
Rice, T. D., 21  
Riceman, D. S., 182, 223, 246  
Richards, F. J., 182  
Richards, L. A., 66, 87, 88, 90,  
103, 107, 172, 319  
Richards, P. W., 126  
Richards, S. J., 98, 102, 103, 169  
Richardson, E. C., 266  
Richardson, H. L., 211, 245, 365  
Richardson, J. K., 242  
Richardson, L. T., 140  
Richer, A. C., 239  
Richter, W., 22  
Ricker, C. C., 136  
Ridiger, V., 244  
Riehm, H., 47, 54, 67, 75, 78, 79  
Riethus, H., 271  
Rigg, T., 44  
Rigotard, M., 63  
Rinkleben, P., 241, 358  
Ringborg, G., 253  
Rinne, L., 247  
Riollano, A., 216  
Ripley, P. O., 164, 166  
Rippel, A., 62, 151  
Ripperton, J. C., 404  
Ritchey, G. E., 213, 265  
Ringer, A. A., 123  
Riumin, N., 198  
Rivas, S., 361  
Rivaz, C. P., 71  
Riviera, I. M., 380  
Roach, W. A., 95  
Robbins, W. R., 33  
Robert, J. C., 302  
Roberts, E., 168  
Roberts, G., 199  
Roberts, J. L., 143, 146, 149, 165  
Roberts, R., 403  
Robertshaw, P., 215  
Robertson, D. W., 291, 350  
Robertson, J. K., 164, 325  
Robinson, B., 51, 53  
Robinson, B. B., 280, 282, 283  
Robinson, G. W., 73  
Robinson, R., 334  
Robinson, R. R., 48, 254, 261  
Robinson, T. J., 247  
Robinson, T. R., 383  
Robinson, W. O., 52, 57  
Roboz, E., 289  
Rockie, W. A., 394  
Roddan, G. M., 373  
Rode, A. A., 119, 120, 341  
Rode, M. C. H., 168, 375  
Roderick, D. B., 308  
Rodov, A. S., 280  
Rodrigues, G., 158  
Rodriguez, C., 67  
Roe, H. B., 130, 134, 171  
Roelofsen, P. A., 294  
Roest, P. K., 373  
Rogers, H. T., 23, 49, 132, 134,  
137, 200  
Rogers, L. H., 55, 73, 81  
Rogers, L. M., 329  
Rogers, W. M., 294  
Rogers, W. S., 311, 328  
Rogler, G. A., 138  
Rogoza, I. D., 259  
Rohde, G., 221  
Rohner, L. V., 206, 207  
Roland, G., 290, 292  
Rolle, W. A., 403  
Rollins, H. A., 317  
Romanovsky, V., 93, 405  
Romashev, P. I., 167  
Romashevich, I., 209  
Römer, A., 295  
Romero, I. A., 211  
Romig, J. R., 391  
Rose, M. S., 107  
Rosen, H. R., 352



# AUTHOR INDEX

- Rosenbaum, H., 129
- Rosendahl, R. O., 151, 339
- Rosentfels, R. S., 233
- Rosevear, D. R., 337
- Roseveare, G. M., 359, 374, 394
- Ross, C. S., 28, 29
- Ross, G. R., 132
- Ross, J. C., 155
- Ross, W. H., 174, 175, 198, 207, 383
- Ross, W. J., 347
- Rossi, M., 51
- Rost, C. O., 112, 122, 123, 157, 389, 391
- Roth, G., 335
- Roth, H., 175, 195
- Rothgeb, R. G., 386
- Rothkegel, W., 155
- Rotinjan, A. I., 19
- Roubaud, E., 225
- Rounds, M. B., 325
- Rouschal, C., 93
- Rousseau, J., 280
- Rousseau, L. Z., 380
- Routien, J. B., 339
- Rowe, L. R., 68
- Rowland, H., 242
- Rowland, J. W., 375
- Rowland, R. A., 28
- Rowles, C. A., 112
- Roy, S. C., 322
- Roy, W. R., 321, 322
- Rozaov, A. N., 20, 122, 123
- Rozhdestvensky, B. N., 234
- Rozhdestvensky, I. G., 289
- Rozin, M. S., 363
- Rozinov, P. G., 151
- Rozmakhov, I. G., 158
- Rozov, N. N., 362, 370
- Rubashev, A. B., 114, 261
- Rubinchik, Yu. A., 204
- Rubins, E. J., 207
- Ruden, W. L., 392
- Rudolfs, W., 219, 220
- Ruehle, G. D., 322, 326
- Rule, G. K., 133, 389, 392
- Rupel, I. W., 249
- Ruschmann, G., 65, 140, 217, 218
- Russel, J. C., 18, 103, 132, 161
- Russell, E. J., 196, 268, 269, 356, 357
- Russell, E. W., 92, 159, 160
- Russell, F. C., 252
- Russell, J. A., 395
- Russell, M. B., 28, 90, 91, 106, 107, 112, 113, 172
- Russell, R. J., 158
- Rutzler, J. E., Jr., 44
- Ruzek, C. V., 393
- Ryan, F. E., 250
- Rybak, V. N., 261
- Ryker, T. C., 246
- Ryzhenkova, M. G., 38
- Ryzhov, S. N., 92, 123, 172, 173

## S

- Sabinna, I. G., 122
- Sablukov, L. N., 170
- Sadovnikov, I. F., 122
- Sadovsky, P. I., 217
- Saenz Maroto, A., 347
- Safta, I., 364
- Saharima, M., 259
- Sahni, P. N., 170
- Saidel, T., 31
- St. John, J. L., 314
- Saito, T., 286
- Sajfertová, D., 287, 289
- Sajoncz, A., 255
- Sakharov, M. I., 336, 341
- Sakharov, P., 83
- Sale, G. N., 370
- Salgado, M. I. M., 194, 211, 324, 369
- Salisbury, H. F., 58, 60
- Salminen, A., 68, 119
- Salohelmo, L., 23
- Salonen, M., 45, 189
- Salter, R. M., 163, 188
- Salzmann, R., 250
- Samant, K. M., 278
- Samayoa, O., 381
- Sambur, G. N., 41
- Samet, K., 207, 242, 263, 264
- Samoilov, I. I., 202, 203
- Sampietro, G., 244
- Sampson, A. W., 134
- Samsel, L. G., 169
- Sandberg, G., 226, 364
- Sanders, F. R., 325
- Sandoiu, F. C., 43
- Sanford, G. B., 225, 273
- Sannabhatti, S. K., 285, 286

# AUTHOR INDEX

- Sannikov, V. S., 312  
 Sanotskaia, E. I., 309  
 Sant, G. K., 69  
 Sapozhnikov, N. A., 120  
 Sapun, M. P., 175  
 Sarycheva, A. P., 192  
 Sauerlandt, W., 207  
 Saunders, A. R., 160, 375  
 Saunders, G., 190  
 Savage, C. G., 312  
 Savage, E. F., 327  
 Savel'ev, N. M., 160  
 Savill, E. H., 357  
 Savitsky, K. A., 300  
 Savory, J. B. G., 174  
 Savvina, A. G., 183  
 Savvinov, N. I., 100  
 Saxby, S. H., 225, 261  
 Sayre, C. B., 221, 267, 348, 349  
 Sayre, J. B., 229  
 Sayre, J. D., 68  
 Scaëtta, H., 127, 159  
 Scarseth, G. D., 42, 73, 95, 96,  
 178, 179, 196, 224, 390  
 Scavone, G., 283  
 Schaal, J., 201  
 Schachtschabel, P., 32, 59, 60,  
 78, 81, 83  
 Schaeffler, H., 235  
 Schaefflenberg, B., 229, 230  
 Schafer, E. G., 393  
 Schafer, G. M., 28  
 Schaller, F. W., 176  
 Schander, H., 265  
 Schappelle, N. A., 329  
 Scharif, J. W., 211, 218, 220  
 Scharrer, K., 49, 80, 181, 191,  
 192, 193, 200, 234, 242, 267,  
 304, 346, 350  
 Schattner, M., 210  
 Scheffer, F., 59, 61, 62, 63, 64,  
 65, 96, 126, 141  
 Scheffer, P. M., 132  
 Scheibe, A., 346  
 Schell, H., 299  
 Scherbatoff, H., 180  
 Schermerhorn, L. G., 274, 342,  
 345  
 Schery, R. W., 397  
 Scheunert, A., 270, 343  
 Schiff, L., 129  
 Schindler, K., 271  
 Schineis, W., 233, 240, 242  
 Schleip, H., 243  
 Schlenker, F. S., 33  
 Schlensz, P., 313  
 Schlieszus, A., 186  
 Schmalfuss, K., 61, 83, 108, 195,  
 197, 200, 281, 301  
 Schmid, F. A. F., 68  
 Schmid, K., 240  
 Schmidt, C. M., 182  
 Schmidt, F. M., 394  
 Schmitt, H., 190  
 Schmitt, L., 175, 176, 188, 197,  
 202, 203, 206, 233, 234, 235,  
 240, 242, 253, 257, 358, 359  
 Schneider, F., 291  
 Schneider, G. W., 100  
 Schneider, R., 43, 54  
 Schneider, S., 118  
 Schreiter, F., 257  
 Schoen, P. W., 338  
 Schoenleber, L. H., 18, 19, 169  
 Schofield, J. L., 401  
 Schofield, R. K., 89, 103, 171  
 Schollenberger, C. J., 188  
 Scholz, W., 251  
 Schönfeld, A., 46, 72, 75  
 Schoorel, A. F., 297, 298  
 Schoth, H. A., 266  
 Schotola, H., 207  
 Schrader, A. L., 311, 327, 328  
 Schrader, T., 330  
 Schramm, W., 234, 243  
 Schreiber, R., 191, 193, 200, 238,  
 242, 267, 304, 346, 350  
 Schroeder, R. A., 37, 177, 273,  
 346, 351  
 Schroeder, W. T., 267  
 Schropp, W., 179, 181, 182, 224,  
 225, 233, 235, 240, 242, 243,  
 261, 267  
 Schubert, H. J., 140  
 Schucht, F., 358  
 Schuffelen, A. C., 74, 176  
 Schulhoit, H. B., 383  
 Schulte, E., 162, 178, 321  
 Schultz, E. F., 213, 303, 319  
 Schulz, F., 312  
 Schuphan, W., 175, 180, 207,  
 342, 359  
 Schuster, C. E., 72, 159, 213,  
 322, 323  
 Schweizer, J., 294, 298  
 Schwendiman, A., 232

# AUTHOR INDEX

- Schwenkel, H., 155  
 Schwerdt, K., 54  
 Schwerdtfeger, F., 229  
 Scofield, C. S., 38, 95, 172  
 Scott, A., 71, 94  
 Scott, C. E., 325  
 Scott, D. J., Jr., 230  
 Scott, J. D., 375  
 Scott, L. E., 330  
 Scott, R. O., 74, 192  
 Scott, W., 220  
 Scully, N. J., 333  
 Scurti, F., 93  
 Seale, J. D., 292  
 Searfoss, P. L., 386  
 Sears, O. H., 148, 264  
 Sears, P. B., 155  
 Sears, P. D., 255  
 Secrett, F. A., 343  
 Sedletsy, I. D., 19, 20, 26, 27, 28, 56, 62, 64, 117, 122, 159  
 Seeley, J. G., 352, 355  
 Seeman, A. L., 393  
 Segeberg, H., 93  
 Seigworth, K. J., 155  
 Seitz, C. E., 130  
 Seixas Queiroz, M., 80  
 Sekera, F., 97, 100, 109, 111  
 Seki, T., 365  
 Sekirin, D. M., 276  
 Selakov, S. N., 114  
 Selke, W., 191, 196, 234, 235  
 Sell, O. E., 201, 248  
 Sellei, H., 183  
 Sellei, J., 183  
 Sellschop, J., 324  
 Selman, I. W., 349  
 Semakin, K. S., 320  
 Semb, G., 73  
 Semenov, M. I., 145  
 Semerger, K. L., 206  
 Semple, A. T., 250  
 Sen, A., 125, 126, 127, 157  
 Sen, B., 255  
 Sen, H. D., 216  
 Sen, N. K., 245  
 Sen, P. C., 216  
 Sen, P. K., 322  
 Senaratna, J. E., 166  
 Sen Gupta, J. N., 368  
 Sen Gupta, N. C., 24  
 Senni, L., 305  
 Serdobol'sky, I. P., 100  
 Serdobol'sky, I. T., 49  
 Sergeenko, V. M., 312  
 Sergeev, S. E., 123  
 Serranillos, M. G., 361  
 Seshacharyulu, E. V., 144  
 Sessions, G., 299  
 Sethi, R. L., 245  
 Setzer, J., 36, 42, 133, 394, 395  
 Sevost'yanov, F. G., 89  
 Sewell, W. G., 305  
 Shafer, W. H., 379  
 Shain, S. S., 165  
 Shamshin, A. S., 130  
 Shands, H. L., 70  
 Shantz, H. L., 166, 372  
 Shaposhnikov, A. P., 103  
 Shapovalova, M. P., 276  
 Sharasuvana, S., 128  
 Sharov, V. S., 24  
 Sharova, A. S., 120  
 Sharp, A., 294, 400  
 Sharp, M. A., 18, 19  
 Sharp, R. P., 118  
 Sharpe, C. F. S., 133  
 Shaulis, N. J., 165  
 Shavrygin, P. I., 39  
 Shaw, B., 26, 88, 90  
 Shaw, B. T., 26, 27, 52, 72, 98  
 Shaw, H. R., 18  
 Shaw, J. K., 314  
 Shaw, K. G., 225  
 Shaw, S. H., 370  
 Shaw, T. M., 91  
 Shaw, W. M., 51, 53, 55, 83, 84, 85  
 Shawarbi, M. Y., 79  
 Shcheglova, Z. V., 200  
 Shchepetilnikova, A. M., 42  
 Shcherba, S. V., 185, 188, 207  
 Shchukina, A., 84  
 Shchukina, A. I., 24, 64  
 Shea, M., 233  
 Shear, G. M., 293, 296  
 Shearer, J., 26, 73  
 Shedd, C. K., 18, 226  
 Shee, J. C., 51  
 Sheets, O. A., 267  
 Shelton, W. R., 75  
 Sheloumova, A. M., 146  
 Shen, C. I., 239  
 Shepard, H. R., 33  
 Shephard, C. Y., 381, 382  
 Shepherd, W. O., 392

# AUTHOR INDEX

- Sherman, G. D., 57, 58, 80, 224, 240
- Sherman, G. L., 130
- Sherman, M. S., 49, 76
- Sherman, W. C., 263
- Shetty, K. S., 368
- Shevchenko, A. E., 102
- Shevchenko, N. N., 282
- Shevchuk, N. S., 92, 123
- Shevliagin, A. I., 160
- Shikhova, M. V., 124
- Shioiri, M., 244
- Shipman, R. C., 169
- Shirck, F. H., 228
- Shirley, H. L., 332
- Sljve, J. W., 68, 108, 179, 180, 184
- Shkol'nik, R. Ya., 90
- Shleifel'd, S. A., 312
- Shmakova, G. V., 62
- Shoemaker, J. S., 379
- Shoesmith, L., 156
- Shreve, F., 380
- Shrikhande, J. G., 76, 212
- Shubert, M. L., 169
- Shukevich, M. M., 20
- Shukla, K. P., 31, 34, 104, 105
- Sideri, D. I., 27, 28
- Sideris, C. P., 76
- Sidorov, I. S., 248
- Siegel, O., 61, 62, 83, 123, 209, 210
- Sieling, D. H., 43, 84, 179
- Sigers, P. V., 340
- Sigurdsson, S., 62, 405
- Sik, K., 82, 90
- Silberstein, L., 181
- Silk, B. J., 58
- Siller, W., 291
- Sim, J. T. R., 375
- Simmons, A. G. E., 304
- Simon, M., 288, 289, 290, 292
- Simonson, R. W., 20, 48, 82, 117, 118, 124
- Simpson, D. M., 275
- Simpson, J. B., 356
- Sims, H. J., 241
- Sinclair, A. J., 298
- Sinclair, S. M., 323
- Sinclair, W. B., 324
- Sinel'shchikov, S. I., 107
- Singh, A., 70
- Singh, B., 321
- Singh, B. N., 153, 285
- Singh, D., 33, 45
- Singh, L., 321
- Singh, M., 278
- Singh, R. N., 37, 153
- Singh, S., 278
- Sinha, R. K., 29
- Siniagin, I. I., 54, 122
- Siple, P. A., 405
- Sircar, S. M., 245
- Sirur, S. S., 113
- Sison, P. L., 398
- Sitton, B. G., 45
- Skewes, H. R., 401
- Skinner, A. F., 168
- Skinner, J. J., 174, 185, 277, 318
- Skok, J., 222, 344
- Skorobogatov, M. E., 363
- Skorodumov, A. S., 106
- Skottsberg, C., 396
- Skriabin, F. A., 209, 276
- Skuderna, A. W., 288
- Skutch, A. F., 381
- Slabber, M. H., 376
- Slate, G. L., 326, 327, 385
- Slatcr, C. S., 87, 88, 133, 185
- Smalley, H. R., 185
- Smaly, V., 143, 145
- Smaragdov, D. G., 335
- Smelov, S. P., 171
- Smirnov, E. S., 229
- Smirnov, N. D., 202
- Smirnova, K. M., 36, 158
- Smirnov-Loginov, V. P., 362
- Smit, J., 97
- Smit, N. J., 262
- Smit, N. L., 257, 375, 376
- Smith, A., 116, 373
- Smith, A. G., Jr., 352
- Smith, A. L., 210, 279
- Smith, A. M., 45, 198, 226, 252
- Smith, A. W., 391
- Smith, C. A. N., 262
- Smith, C. W., 227
- Smith, C. W. R., 68
- Smith, D. D., 135, 168, 262, 263
- Smith, E. C., 173
- Smith, E. V., 227
- Smith, F. B., 43, 141, 153, 258
- Smith, F. V., 390
- Smith, F. W., 99
- Smith, G. D., 158, 163, 389, 390
- Smith, G. E., 128, 164, 175, 197, 208

# AUTHOR INDEX

- Smith, G. E. P., 309  
 Smith, H. L., 104  
 Smith, H. W., 43, 82, 117  
 Smith, J. B., 231  
 Smith, L. R., 283  
 Smith, M. E., 339, 340  
 Smith, M. W., 230  
 Smith, N. C., 179  
 Smith, N. R., 138  
 Smith, O., 268, 269, 270, 272  
 Smith, R., 92, 402  
 Smith, R. M., 105, 107, 247, 250  
 Smith, Roberto, 381  
 Smith, R. S., 43, 163  
 Smith, T. E., 296  
 Smith, W. O., 86, 116  
 Smith, W. P. C., 224, 266, 400  
 Smith-White, S., 303  
 Smock, R. M., 316  
 Smolfs, L., 35, 49, 58, 90, 104  
 Smolina, L. B., 92  
 Smoyer, K., 325  
 Snider, H. J., 58, 175, 225  
 Snoep, W., 90, 298  
 Snow, A. G., Jr., 338  
 Snyder, C. G., 130  
 Snyder, E., 331, 383  
 Snyder, H. J., 129  
 Snyder, J. E., 155  
 Snyder, R. S., 39  
 Sobolev, S. S., 129, 362, 363  
 Soine, O. C., 391  
 Sokoloff, V. P., 45, 319, 325  
 Sokolov, A. V., 47, 119  
 Sokolov, D. F., 77  
 Sokolov, F., 123  
 Sokolov, N. S., 111  
 Sokolov, S. I., 20, 107  
 Sokolova, O. I., 237  
 Sokolovsky, A. N., 39, 104, 130, 158, 362  
 Solov'ev, A. V., 20  
 Soltész, S., 159  
 Sombito, E. P., 36  
 Sommer, A. L., 180  
 Somoza, A. L., 396  
 Songcuya, C. C., 245  
 Soong, P. N., 351  
 Soriano, S., 143, 144  
 Sorokina, A. V., 244  
 Sosne, J., 106, 114  
 Southern, B. L., 400  
 Southwick, F. W., 311  
 Southwick, L., 316  
 Southwick, R. W., 321, 323  
 Spangenberg, G. E., 247  
 Spanner, L., 162  
 Spaulding, M. F., 198  
 Spawn, G. B., 229  
 Specht, A. W., 117  
 Spence, C. C., 379  
 Spengler, O., 216  
 Spidel, B., 64  
 Spillsbury, R. H., 108, 158  
 Spinks, G. T., 314  
 Spivakovsky, N. A., 314  
 Spooner, R. C., 305  
 Spottiswoode, H., 373  
 Sprague, H. B., 189  
 Springensguth, W., 293  
 Springer, D. E., 188  
 Springer, U., 62, 82, 83, 141, 217  
 Sprv, R., 50  
 Spurr, S. H., 37  
 Spurr, W. B., 280  
 Spurway, C. H., 41, 72, 94, 354  
 Spuy, M. J. v. d., 174  
 Sreenivasan, A., 60, 78, 103, 127, 196, 275  
 Sreenivasan, P. S., 105  
 Srinivasan, N., 215  
 Srivastava, R. C., 216  
 Stadelmann, 202  
 Staebner, F. E., 172  
 Staikoff, Z., 55  
 Stair, E. C., 70, 349  
 Staker, E. V., 56  
 Stanford, G., 178  
 Stanford, G. W., 233  
 Stanier, R. Y., 149  
 Stanton, D. J., 205, 399  
 Staple, W. J., 87, 257  
 Staples, R. R., 138, 230, 374  
 Stapledon, R. G., 249  
 Stapp, C., 143, 144  
 Starkey, R. L., 141, 145, 150, 214  
 Starodubtsev, S. Y., 93  
 Starov, P. V., 277  
 Starr, G. H., 224  
 Staten, G., 276  
 Staten, H. W., 350  
 Staufer, R. S., 60, 130, 162  
 Stearns, C. R., Jr., 320  
 Stebbing, E. P., 138  
 Stebbing, W. P. D., 190

# AUTHOR INDEX

- Stecher, H., 353  
 Stedman-Davies, D., 370  
 Steele, J. G., 156, 384  
 Steenbjerg, F., 56, 223  
 Steenkamp, J. L., 376  
 Steinberg, I., 240  
 Steinberg, R. A., 152  
 Steindl, D. R. L., 198  
 Stelly, M., 45, 50  
 Stene, A. E., 327, 353  
 Stenhouse, A. S., 135  
 Stepanov, N. N., 341  
 Stephens, A. L., 374  
 Stephens, C. G., 47, 156, 183, 401, 403  
 Stephens, J. L., 262, 264, 266  
 Stephenson, R. E., 49, 72, 159, 185, 322, 323, 392  
 Sterz, M., 264  
 Steven, A., 208  
 Steven, H. M., 356  
 Stevens, C. P., 160  
 Stevens, H. E., 383  
 Stevens, N. E., 329  
 Stevenson, G., 274  
 Stevenson, T. M., 246  
 Stewart, A., 378  
 Stewart, A. B., 41, 42, 48, 58, 76, 192, 205, 355, 356  
 Stewart, A. J., 69, 86  
 Stewart, C. E., 156  
 Stewart, G., 228  
 Stewart, J., 58  
 Stewart, R., 230  
 Stewart, W. S., 183  
 Stillings, E. N., 306  
 Stinson, F. A., 44, 293  
 Stirling, J., 280  
 Stitt, R. E., 262  
 Stoa, T. E., 390, 392  
 Stobbe, P. C., 378  
 Stockberger, W. W., 300  
 Stöckli, A., 44, 96, 215, 218  
 Stoddard, D. L., 347  
 Stoddart, L. A., 20  
 Stoeckeler, J. H., 90, 332, 333, 335  
 Stoker, G. L., 289, 291  
 Stokes, J. L., 150, 153  
 Stokes, S. J., 400  
 Stokes, W. E., 256, 257, 265  
 Stoliarova, A. A., 178  
 Stoller, B. B., 352  
 Stoltenberg, N. L., 105  
 Stolzenburg, U., 75  
 Stone, E. L., 335  
 Storck, A., 355  
 Storey, W. B., 325  
 Storie, R. E., 118, 154, 155, 156, 157, 392  
 Story, R. V., 55  
 Stoughton, R. H., 162, 163, 352  
 Stout, P. R., 48  
 Strain, W. B., 218  
 Strandine, E. J., 153  
 Stranski, I. T., 111  
 Strauss, J. L., 324  
 Straw, H. T., 388  
 Street, O. E., 195, 294  
 Strelnikova, M. M., 204  
 Stremovsky, L. I., 202  
 Strickland, A. G., 234  
 Ströbele, F., 174  
 Stroeve, V. Ya., 202  
 Strong, T. H., 401  
 Strong, W. O., 272  
 Strüby, A., 364  
 Strugger, S., 93  
 Struthers, J., 365  
 Stuive, A., 165  
 Stubblefield, F. M., 233  
 Stubbs, J., 226  
 Stuckey, I. H., 255  
 Stumbo, C. R., 239  
 Sturgis, M. B., 53, 244, 387, 388  
 Sturkie, D. G., 250, 389  
 Subido, P. S., 245  
 Süchting, H., 62, 332, 333, 334, 338, 339, 341  
 Sudakova, L., 281  
 Sudds, R. H., 112, 313, 385  
 Sugawara, T., 272  
 Suit, R. F., 385  
 Sukhatme, P. V., 174  
 Sulaiman, M., 125, 126, 144  
 Sullam, V. B., 360, 372  
 Sullivan, J. H., 200  
 Summerby, R., 241  
 Summerville, W. A. T., 402  
 Sundara Rao, A. L., 144  
 Sundara Rao, W. V., 142  
 Sundaram, S., 278  
 Suomalainen, H., 144  
 Sushkina, N. N., 145  
 Sutherland, A. J., 48, 58  
 Sutherland, C. F., 399

## AUTHOR INDEX

- Sutherland, M. L., 93, 118, 140, 141  
Sutoh, H., 283  
Suyama, G., 121, 316, 337, 366  
Svanberg, O., 56  
Sveshnikov, A. M., 272  
Swaby, R. J., 142, 144, 146, 198, 207  
Swanback, T. R., 141, 295, 296  
Swanson, A. F., 391  
Swanson, C. L. W., 67, 90, 113, 132  
Swanson, P., 274  
Swarbrick, T., 160  
Swarup, L., 237  
Sweet, R. D., 342  
Swezev, J. A., 172  
Swift Powell, J., 380, 381  
Swingle, C. F., 336  
Sykes, E. F., 135  
Sykes, J. M., 220  
Sykes, R. A., 373  
Syme, P. S., 211, 227, 253, 257, 335, 399  
Symontowne, R., 310  
Szelényi, F., 140, 245  
Szilvinyi, A. V., 151  
  
T  
Tabor, P., 266  
Tadeosian, P. Ya., 319  
Tagare, V. D., 37, 45, 283  
Taguena, J. M. X., 264  
Tait, W. L., 119  
Talati, R. P., 230, 367  
Talbert, T. J., 391  
Talesara, S. C., 237  
Tam, R. K., 230, 231  
Tamai, T., 17  
Tambe, G. G., 237  
Tamés, A. C., 21, 66, 86, 360, 361  
Tamm, E., 265  
Tamm, O., 334  
Tamman, A., 272  
Tamura, Y., 322  
Tanada, T., 52  
Tanaka, R., 180, 366  
Tanasijević, G., 78  
Tang, S., 245  
Tannous, A. L., 369  
Tappv, E. P., 204  
Taranets, T. P., 362  
Taranovskaia, V. G., 125, 192  
Tarasuk, G. G., 89  
Taruntaev, A. A., 114  
Tarutina, O. I., 237  
Tatarinova, I., 64  
Tatunok, V. D., 152  
Tavernetti, J. R., 151  
Taylor, A. J., 210, 257, 375  
Taylor, A. L., 231  
Taylor, A. W., 150  
Taylor, C. A., 319  
Taylor, C. R., 257  
Taylor, E. M., 40, 166, 380  
Taylor, J. E., 283  
Taylor, J. K., 21, 155, 156, 400, 402  
Taylor, J. L., 387  
Taylor, N. H., 200, 399  
Tazove, H., 337  
Teakle, L. J. H., 56, 156, 181, 182, 183, 205, 235, 236, 238, 269, 311, 331, 400  
Tedrow, J. C. F., 64  
Teik, G. L., 257  
Teixeira, A. J. da Silva, 361  
Teleshev, K. G., 170  
Telford, H. S., 229  
Temnikova, L. M., 38  
Temple, F. C., 218  
Templeman, W. G., 162, 184  
Tereshchenko, A. I., 273  
Terry, H. B., 274, 301, 345  
Teshima, S., 196  
Tharp, W. H., 70, 279  
Thayer, J. W., Jr., 71  
Thein, U. Ba, 244  
Themlitz, R., 65, 200, 208, 217, 218, 241  
Theron, C. J., 330  
Theron, F. H., 375  
Theron, J. J., 207  
Thimiab, A. C., 367  
Thirumalachari, N. C., 275  
Thom, C., 141  
Thomas, A. S., 41, 125, 282, 368, 372, 374  
Thomas, A. T., 160  
Thomas, C. A., 228  
Thomas, H. Earl, 325  
Thomas, Harold E., 325  
Thomas, H. R., 349  
Thomas, I., 235, 400

# AUTHOR INDEX

- Thomas, M. D., 260
- Thomas, P. H., 403
- Thomas, R., 367, 374
- Thomas, R. P., 82, 84, 117
- Thomas, W., 94, 95, 96, 221, 348, 349
- Thomas, W. D., Jr., 151, 338, 391
- Thomason, H. L., 321
- Thompson, A., 215
- Thompson, F. B., 228, 248
- Thompson, F. C., 344, 345, 353
- Thompson, H. A., 109, 299
- Thompson, J. G., 199
- Thompson, J. K., 213, 269, 271, 345
- Thompson-Schwab, F., 167
- Thorfinnson, M. A., 131
- Thornburn, T. H., 137
- Thorne, D. W., 56, 224, 393
- Thorne, G., 292
- Thornthwaite, C. W., 102, 133
- Thornton, B. J., 232
- Thornton, G. D., 387
- Thornton, H. G., 147
- Thornton, R. W., 135
- Thorp, J., 157, 365, 385
- Thorpe, E. W. R., 402
- Throckmorton, R. L., 161, 163, 212
- Thun, R., 72, 191, 193, 196, 198, 206, 207
- Thwaites, D. H., 374
- Tiagny-Riadno, M. G., 98, 99, 112
- Tiangsing, J. P., 284
- Tidbury, G. E., 329, 375
- Tiedjens, V. A., 186, 187, 274, 342, 346
- Tieh, T. M., 365
- Tikos, B., 38
- Tilt, J., 280
- Timmons, F. L., 227
- Timofeev, A. T., 113
- Timofeev, V. P., 102
- Timofeiuk, K., 207
- Timonin, M. I., 139
- Timoshenko, S. V., 290
- Timson, S. D., 213, 215, 377
- Tin, U., 244, 245
- Tincker, M. A. H., 344, 353
- Tingey, D. C., 354
- Tinline, M. J., 227
- Tinsley, J., 71
- Tirén, L., 334
- Tischer, J., 76
- Tisdale, E. W., 158
- Tisdale, H. B., 278, 279
- Tisdall, A. L., 172, 173
- Titani, T., 24
- Titlianov, A., 115
- Titta, G., 115, 221, 241
- Titzck, W., 289
- Tiulin, A. F., 63, 92, 119, 120
- Tiulin, A. S., 188
- Tiunov, A. N., 261
- Tinnova, K. P., 239
- Tinrin, I. V., 61, 72, 119, 331
- Tkachenko, M. F., 336
- Tobey, E. R., 210
- Toenjes, W., 165
- Tofte, C. R., 215
- Tohir, K. A., 399
- Tokuoka, M., 197, 217, 236, 243, 246
- Tolman, B., 185, 288, 289, 291, 393
- Tolstopiatov, B. V., 117
- Tompkins, C. M., 355
- Topolanski, E. M., 397
- Topper, B. F., 382
- Torres, A. B. M., 361
- Torrie, J. H., 70
- Torstenson, G., 116, 143, 209, 363
- Toth, S. J., 27, 46, 195, 260, 384
- Toursel, O., 94, 96, 97
- Tower, H. E., 164
- Trant, I. F., 268
- Traub, H. P., 383
- Trelease, S. F., 41, 51
- Tremearne, T. H., 200
- Trenary, O. J., 169
- Trénel, M., 68
- Trenk, F. B., 339
- Tritt, A., 219
- Trnka, R., 181, 287
- Troitsky, V. M., 72
- Troup, L. G., 357
- Trullinger, R. W., 17
- Trumble, H. C., 68
- Trumbull, H. L., 383
- Truninger, E., 182, 189, 190
- Truog, E., 31, 54, 77, 84, 92, 220
- Truscott, J. H. L., 379
- Truss, P. S., 200, 208



# AUTHOR INDEX

- Tryon, H. H., 336  
Tsarev, M. V., 305  
Tschulkov, P. M., 31  
Tseitlin, S. G., 59  
Tsiang, Y. S., 74  
Tsivenko, I. A., 114  
Tsivinsky, V. I., 276  
Tsyganov, M. S., 111  
Tsyshkalo, G. A., 312  
Tu, S. T., 305  
Tucker, C. M., 179  
Tukey, H. B., 232  
Tul'chinskaia, E. M., 198  
Tullis, E. C., 246  
Turchin, F. V., 176  
Turfitt, G. E., 65, 150  
Turk, L. M., 102, 215  
Turkhin, E. I., 86  
Turnbull, J., 171  
Turner, H., 220  
Turner, J. H., Jr., 277  
Turner, L. M., 332  
Turner, P. E., 285  
Turner, R. C., 64, 92, 204  
Turrell, F. M., 184  
Turton, A. G., 56, 235, 331  
Twenhofel, W. H., 130  
Twentyman, R. L., 403  
Twyman, E. S., 57, 240  
Tymich, V., 237  
Tyner, E. H., 84, 91, 210
- U
- Uhden, 22  
Uhl, F. A., 79, 81, 82, 193  
Uhland, R. E., 134, 136, 156  
Ukradyga, F. Ya., 288  
Ukrainsky, V. T., 301  
Ulbricht, H., 281  
Uliakov, I., 200  
Ullmann, W., 262  
Ulrich, A., 95, 96, 287, 289, 291  
Umberg, H., 358  
Umbreit, W. W., 150, 263  
Unchev, N. D., 324  
Underwood, E. J., 247  
Unkles, W., 312  
Uno, S., 197  
Unrau, J., 304  
Unti, O., 36  
Uokawa, H., 243
- Upshall, W. H., 314  
Urbain, P., 103  
Ureta, V. C., 191  
Urquhart, D. H., 373  
Usov, N. I., 52, 124  
Uspanov, U. U., 123  
Ustiuzhanina, E. M., 180, 193  
Utey, I. V., 120  
Utsch, W., 220, 232  
Uvarova, Z. A., 78, 85  
Uverud, H., 233, 251, 253, 261  
Uys, G. J. C., 375, 376  
Uzcátegui, L., 293
- V
- Vadiunina, A. F., 98  
Vageler, P., 126, 155, 156  
Vagholkar, B. P., 69, 286  
Vágt, I., 54, 331  
Vaher, A., 351  
Vaidhianathan, V. I., 25, 100  
Vaidya, V. G., 109  
Valente-Almeida, L. A., 361  
Valkanov, V., 248  
Valkovszky, E., 35  
Vallance, I. G., 401, 402  
Valleau, W. D., 296  
Valuta, I., 364  
Van Aartsen, J. P., 375  
Vandecaveye, S. C., 129, 140, 145, 148, 149, 246, 393  
Van den Berg, A. J., 376  
Vanderford, H. B., 29, 158, 258, 387  
Van der Merwe, C. R., 109  
Van der Merwe, D. J., 183  
Van der Merwe, W., 259  
Van der Spuy, M. J., 160  
Vanderwaeren, J., 288, 289, 290  
Van Doren, C. A., 137, 162, 249  
Van Garderen, J., 376  
Van Geluwe, J., 316  
Van Haarlem, J. R., 311  
Vanikar, J. V., 65  
Van Kleck, L. W., 219, 220  
Van Niel, C. B., 150  
Vanoni, I. E., 190  
Van Rooyen, C. F., 377  
Vanselow, A. P., 222, 318, 319  
Van Vuren, J. P. J., 219, 376  
Van Zyl, J. P., 218, 376

# AUTHOR INDEX

- Várallyay, G., 97  
 Vašátko, J., 287  
 Vasey, G. H., 17  
 Vasil'ev, I. S., 86, 119  
 Vasiliadis, C., 86, 141  
 Vasudeva, R. S., 278  
 Vavrinecz, G., 289  
 Veale, P. T., 94  
 Veatch, J. O., 390  
 Veen, R. van der, 176, 298, 307  
 Veldmeyer, F. J., 90, 101, 276, 311, 312, 316  
 Veisfeld, G. B., 23  
 Velasco, J. R., 243  
 Venema, K. C. W., 398  
 Verbin, A. A., 163  
 Vergara, E. A., 30  
 Verigina, K. V., 22, 50  
 Vermaat, J. G., 66, 71  
 Vernadsky, V. I., 139  
 Vernander, N. B., 120  
 Verner, L., 311  
 Vershinin, P. V., 117  
 Vertregt, M., 287  
 Vesey-Fitzgerald, D., 377  
 Vesikivi, A., 22  
 Vicente, A. G., 82  
 Vicente, J. G., 257  
 Vickery, H. B., 296  
 Vidal, I. M., 255  
 Vijayaraghavan, C., 127  
 Vilas, L. L., 159  
 Vilensky, D. G., 109  
 Viljoen, X., 215  
 Viljoen, N. J., 213  
 Villar, E. H. del, 127  
 Villar, H. del, 372  
 Vincent, C. L., 129  
 Vincent, J. M., 147, 148  
 Vine, H., 21, 109, 299, 373  
 Vinet, E., 330  
 Vinogradov, A. P., 56  
 Vinogradov, A. S., 261  
 Vinogradova, Kh. G., 258  
 Vinogradsky, B. M., 270  
 Vinokurov, M. A., 33, 64, 120  
 Virri, T. J., 211  
 Virtanen, A. I., 175  
 Visser, W. C., 101  
 Viswa Nath, B., 176, 367  
 Vitali, G., 360  
 Vittum, M. T., 236, 264  
 Vladychensky, S. A., 63  
 Vlasiuk, P. A., 80, 83, 191, 192, 216, 221, 287, 290  
 Vlasoff, P. I., 90  
 Voelcker, O. J., 373  
 Vogler, K. G., 150  
 Voichovich, P. G., 231  
 Volk, G. M., 60, 66, 258, 265  
 Volk, G. W., 201, 206  
 Volk, N. J., 54, 78, 277, 387  
 Volkart, A., 219  
 Volkov, D. A., 246  
 Volkov, I. A., 222  
 Volobuev, V. R., 39  
 Volodchenkova, A. I., 363  
 Voloshin, V. D., 320  
 Volz, E., 144  
 Voorendyk, J. J., 129  
 Vorob'eva, E. I., 114  
 Voronov, A. G., 154  
 Voshchinskaia, M. A., 57  
 Voskresensky, M., 86  
 Vries, O. de, 52, 180  
 Vukhrer, E. G., 146

## W

- Wachholder, K., 270  
 Wade, B. L., 350  
 Wadleigh, C. H., 70  
 Wagenknecht, E., 339  
 Wager, V. A., 326  
 Wagle, P. V., 216, 284, 286  
 Wagner, K. H., 343  
 Wagoner, C. E., 47  
 Wahl, J., 239  
 Wahlén, B., 58  
 Wahlén, H. B., 145, 148  
 Wain, R. L., 58, 271  
 Wakefield, A. J., 381  
 Wakeman, A. J., 296  
 Waksman, S. A., 59, 111, 138, 140, 151, 152, 153, 215, 217, 383  
 Waldo, G. F., 326, 393  
 Walker, C., 170, 262, 399  
 Walker, F., 343  
 Walker, G., 300  
 Walker, J. C., 267, 344, 345  
 Walker, O. J., 51  
 Walker, R. H., 392  
 Walker, R. K., 53  
 Walkley, A., 175, 181

# AUTHOR INDEX

- Wall, P. F., 136
- Wall, R. F., 348
- Wallace, A., 56, 224
- Wallace, J. C., 213, 269, 271
- Wallace, J. W., 373
- Wallace, T., 223, 224, 270, 271, 273, 311, 312, 313, 314, 343, 345, 349
- Wallin, B., 251, 255
- Walsh, T., 25, 71, 159, 236, 240, 313, 349, 356
- Walter, B. H., 87
- Walter, H., 155
- Walters, D. V., 330
- Walters, D. W., 403
- Walters, M. M., 211
- Walther, G., 259
- Waltman, C. S., 314
- Walton, D. W., 219
- Walton, G. P., 318
- Wander, I. W., 79, 161
- Wang, H. H., 365
- Wang, S., 44, 263
- Wang, T., 252
- Wang, T. H., 36
- Wang, T. T., 243
- Wang, Y., 211, 213
- Wann, F. B., 182, 331
- Ward, F. E., 403
- Ward, K. M., 213
- Wardlaw, C. W., 329, 380
- Ware, L. M., 272, 273, 342
- Waring, P. A., 135
- Warrington, K., 346
- Warisi, S., 75
- Warner, J. D., 386
- Warner, R. M., 132
- Warren, G. H., 334
- Warren, T. W., 250
- Washko, J. B., 260
- Watanabe, S., 348
- Waterer, R. R., 369
- Watkins, J. M., 255
- Watkins, W. F., 154
- Watson, D. J., 268
- Watson, L., 262
- Watson, J., 58
- Watson, J. A. S., 128, 163, 356
- Watson, J. M., 374
- Watson, M., 351
- Watson, S. J., 58
- Watts, V. M., 41
- Wagh, J. G., 318
- Wear, J. L., 180
- Weaver, L. R., 87
- Webber, H. J., 322
- Weber, H., 19
- Webster, C. C., 302, 377
- Webster, O. J., 243
- Wedmore, E. B., 116
- Weeks, M. E., 54, 76, 241
- Wegner, J., 247
- Wehrmann, O., 180, 222
- Wehsarg, O., 225
- Weidemann, A. G., 187
- Weigert, J., 177, 208, 235, 252
- Weihing, R. M., 262
- Weimer, J. L., 258
- Weinkauff, R., 334
- Weinmann, H., 249, 252
- Weir, W. W., 155, 156
- Weitzell, E. C., 386
- Welch, C. H., Jr., 390
- Welch, E. G., 136
- Weld, W. A., 168
- Weldon, M. D., 43, 82
- Weldon, T. A., 110
- Wellborn, F. J., 267
- Wellington, R., 268, 330
- Wells, B. W., 386
- Wells, S. P., 345
- Wells, W. G., 275
- Welsch, M., 153
- Welton, F. A., 353, 354
- Wenger, L. E., 257
- Wenk, 312
- Went, F. W., 184
- Werkman, C. H., 177
- Wernimont, K., 155
- Wessels, P. H., 18
- West, A. B., 309
- West, E. S., 142
- West, H. O., 383
- West, J., 373
- West, P. M., 93, 328, 329
- West, W. J., 167
- Wester, R. E., 347, 350
- Westerhoff, H., 223
- Western, J. H., 230
- Westgate, P. J., 148
- Westgate, W. A., 231
- Westover, H. L., 259
- Westover, K. C., 270
- Wetzel, A., 219, 294, 295, 330, 345
- Wheeler, C. R. S., 370

# AUTHOR INDEX

- Wheeting, L. C., 59, 134, 176,  
     208, 260, 352, 393  
 Whelan, L. A., 307  
 Whetstone, R. R., 52  
 Whinnett, S., 162  
 Whipple, C. E., 364  
 White, C. E., 160  
 White, C. T., 401  
 White, D. G., 311, 314  
 White, D. P., 333  
 White, J. W., 22, 117, 188, 239,  
     310  
 White, L. M., 175  
 White, W. J., 246, 304  
 Whitehead, E. I., 51  
 Whitehead, T., Jr., 141  
 Whitehouse, F. W., 125  
 Whiteside, A. G. O., 236  
 Whiteside, E. P., 43, 91  
 White-Stevens, R. H., 272, 342,  
     343, 347, 385  
 Whitfield, C. J., 131  
 Whiting, A. G., 308  
 Whitman, W., 391  
 Whitney, J. B., Jr., 108  
 Whitney, R. S., 37  
 Whitt, D. M., 132, 169, 255  
 Whittaker, C. W., 80, 175, 383  
 Whittet, J. N., 205  
 Whyte, R. O., 166  
 Wiancko, A. T., 265  
 Wibberley, T., 241  
 Wickes, D. R., 365  
 Wickramasekera, G. V., 244  
 Wiehe, P. O., 287, 378  
 Wienhaus, W., 177  
 Wienhucs, F., 235  
 Wiepking-Jürgensmann, H. F.,  
     360  
 Wiese, K., 265  
 Wigglesworth, A.,  
 Wight, K. M., 150  
 Wilbur, D. A., 229  
 Wilcock, B., 210  
 Wilcox, J. C., 101, 108, 314  
 Wilcox, L. V., 95  
 Wilcox, R. B., 327  
 Wild, A. S., 182  
 Wilde, E. I., 352  
 Wilde, S. A., 82, 118, 187, 331,  
     335, 336, 339  
 Wildon, C. E., 354  
 Wilman, R. H., 18  
 Wilkie, D. R., 399  
 Wilkins, S. D., 174  
 Wilkinson, T., 228  
 Willcox, O. W., 70, 71, 96, 176,  
     286, 287  
 Williams, B. H., 101  
 Williams, C. B., 164  
 Williams, C. F., 318  
 Williams, C. H. B., 285, 397  
 Williams, E. E., 253  
 Williams, E. G., 47, 48, 76, 205  
 Williams, G. B., 219  
 Williams, J. E., 167  
 Williams, J. S., 393  
 Williams, K. T., 51  
 Williams, L. I., 397  
 Williams, P. S., 251  
 Williams, R., 43  
 Williams, R. F., 87  
 Williams, W. O., 330  
 Williamson, J. A., 403  
 Willmott, S. G., 369  
 Willis, A. L., 294  
 Willis, L. G., 181, 274  
 Wills, B. C., 58  
 Wilsdorf, J., 249  
 Wilshaw, R. G. H., 129, 324  
 Wilsie, C. P., 165, 390  
 Wilson, A., 368  
 Wilson, D. C., 51, 58  
 Wilson, F. B., 375  
 Wilson, H. H., Jr., 131  
 Wilson, H. K., 225  
 Wilson, J. B., 144, 263  
 Wilson, J. D., 231  
 Wilson, J. K., 140, 142, 148, 259,  
     261, 351  
 Wilson, P. W., 144, 145, 165  
 Wilson, R. C., 278  
 Wilson, R. E., 135  
 Wilson, R. J., 247  
 Wilson, S. G., 377  
 Wilson, S. H., 212  
 Wilson, W. F., 303  
 Wimbush, S. H., 305, 374  
 Winant, H. B., 117  
 Winkel, R., 91  
 Winogradsky, S., 145  
 Winter, E. J., 297  
 Winterberg, S. H., 187, 188, 199,  
     202, 206  
 Winterkorn, H. F., 34  
 Winters, E., 27, 58

# AUTHOR INDEX

- Withrow, R. B., 355  
Wittenkamp, R., 187, 335  
Wittich, W., 339, 341, 358  
Wolf, B., 52  
Wolf, F. A., 295  
Wolfe, H. S., 269, 325, 326  
Wölfer, H., 175  
Wood, C. E., 188  
Wood, C. K., 53  
Wood, H. L., 401, 402  
Wood, I. D., 391  
Wood, J. K., 171  
Wood, L. K., 53  
Wood, R. C., 208, 357  
Woodbridge, C. G., 317  
Woodburn, R., 134  
Woodbury, G. W., 311  
Woodford, R. C., 168, 367  
Woodhouse, W. W., Jr., 184, 252, 254, 386  
Woodman, R. M., 162, 267, 268, 343, 344, 345, 346  
Woodruff, C. M., 101, 113  
Woodruff, H. B., 138, 140, 152  
Woods, J. J., 326, 354  
Woodward, C. R., 150  
Woodward, J. C., 246  
Wooley, J. C., 134, 169  
Wooster, J. L., 300, 394  
Work, R. A., 98, 316  
Worley, C. L., 334  
Worsham, W. E., 53  
Worsley, R. R. le G., 266, 300  
Worthen, E. L., 385  
Wortley, W. R. S., 239  
Worzella, W. W., 115, 128  
Wraight, J., 389  
Wrench, G. T., 218  
Wrenshall, C. L., 49, 53  
Wright, E., 336  
Wright, L. E., 95, 204, 246, 326  
Wright, M. E., 375  
Wu, P. C., 365  
Wyatt, F. A., 43, 379  
Wyche, R. H., 388  
Wylie, K. H., 380, 381, 396, 397  
Wynd, F. L., 49, 72, 256, 391  
Wyss, O., 165
- X
- Xavier, L. P., 283
- Y
- Yakovuk, A. S., 293  
Yakubov, T. F., 122  
Yakuwa, R., 366  
Yamada, S., 366  
Yamanaka, K., 98  
Yamnikov, A. N., 109  
Yamauchi, K., 322  
Yangol, A. M., 171  
Yanovsky, P. G., 20  
Yarilova, E. A., 58  
Yarkov, S. P., 119  
Yarovenko, A. T., 39  
Yartseva, A. K., 142  
Yarusov, S. S., 34, 121, 281  
Yates, F., 357  
Yates, H., 272  
Yatkovskaia, A. I., 38  
Yeates, J. S., 334  
Yi-Lung, L., 264  
Yoakum, K., 265  
Yoder, R. E., 129, 259  
Yokota, R., 116  
Yosimura, S., 366  
Youden, W. J., 355  
Young, A. P., 279  
Young, H. C., 292  
Young, J. B., 55  
Young, P. A., 230  
Young, V. H., 279  
Young, W. C., 138  
Younge, O. R., 278  
Younes, F. O., 308  
Yousef, M., 372  
Yuan, H. F., 245  
Yudin, A. M., 238  
Yur'eva, A., 244  
Yurin, G. A., 160  
Yurkevich, I. D., 114  
Yushok, W., 210  
Yusupova, S. M., 20, 92  
Yuventskaia, S. I., 171
- Z
- Zabelin, N. A., 238  
Zagorskaia, A., 218  
Zahn, K. V., 80  
Zaik, B., 314  
Zaitsev, A. A., 34, 337  
Zaitsev, B. D., 59, 121

# AUTHOR INDEX

- |                                     |                             |
|-------------------------------------|-----------------------------|
| Zak, G. A., 238                     | Zink, F. J., 17             |
| Zakharov, P. G., 133, 250, 363      | Zinov'eva, Kh. G., 142, 146 |
| Zakharov, S. A., 117, 362           | Znamensky, A. V., 46        |
| Zander, H., 291                     | Zobler, L., 113             |
| Zanevich, V. E., 24                 | Zohary, M., 370             |
| Zasjadnikov, T., 309                | Zol'nikov, V. G., 40        |
| Zavalishin, A. A., 22, 50, 117, 119 | Zonn, S. V., 39, 123, 330   |
| Zavialova, E. I., 231               | Zrazhevsky, A. I., 83       |
| Zeasman, O. R., 164                 | Zuber, M. S., 70            |
| Zelenov, V. G., 22                  | Zubov, M. F., 217           |
| Zhorikov, E. A., 276, 277           | Zuev, L. A., 107            |
| Zhuravel, P. V., 99                 | Zunker, F., 89, 99          |
| Zhubicki, Z. I., 342                | Zürn, F., 249, 255          |
| Zimmerley, H. H., 350               | Zvorykin, A. Ya., 221       |
| Zimmerman, P. W., 184               | Zyo, S., 197, 217           |
| Zingg, A. W., 136, 169              | Zyryn, N. G., 52, 62        |



## SUBJECT INDEX

Absorption. Adsorption. Base exchange	631.417 :	631.414.3
capacity of organic mater	631.417 :	
clay and	631.414.2 :	
drying of soil in relation to	631.432.21 :	
in alkali soils	631.415.3 :	
of air by soil	631.433 :	
.. ammonia by soils	631.416.11 :	
.. ammoniacal fertilizers	631.841 :	
.. bacteria by soil	631.461 :	
.. basic slag	631.853 :	
.. boron by soils	631.416.327 :	
.. copper by soils	631.416.856 :	
.. forest soils	634.9-	
.. magnesium by soils	631.416.846 :	
.. manganese by soils	631.416.871.1 :	
.. phosphate by soils	631.416.2 :	
.. phosphate fertilizers	631.85 :	
.. potash by soils	631.416.4 :	
.. soil disinfectants	632.953 :	
.. sulphur by soils	631.416.322 :	
soil nitrogen and	631.416.1 :	
(G) (881)631.416.2 :		
Abyssinia		(63)
Acacia. Wattle See Tanning plants		
Acetylene	631.828 :	547.314.2
as fertilizer		
Acid soils See Soil reaction		
Acclimatic soil types		631.445.9
Actinomycetes		631.466.2
humus and	631.417.2 :	
Aden		(534.5)
Adobe soils See Clay soils		
Aeration of soils See Porosity		
Aerial photography		778.35
for soil mapping	631.471 :	
Aerodromes		711.553.9
grass cultivation for	635.964-1.5 :	
soils of	631.4 :	
Afforestation		634.957
of dunes	631.612 :	
Africa		(6)
Aggregate analysis		631.425.4
Aggregates See under Soil structure; Mechanical composition;		
Micro-organisms; Cultivation; Agricultural		
systems		



# BIBLIOGRAPHY OF SOIL SCIENCE

Agricultural equipment	631.3
for composting	631.875 :
.. mechanized cultivation of sugar cane	633.61-
.. rubber-bearing plants other than <i>Hevea</i>	633.913-
.. terracing	631.613 :
Agricultural systems	631.58
and fungal diseases	632.4 :
drainage and	631.62 :
effect on composition of soils	631.416 :
.. .. soil moisture	631.432.2 :
.. .. soil nitrates	631.416.13 :
.. .. soil organic matter	631.417 :
.. .. soil permeability	631.432.3 :
.. .. soil potash	631.416.4 :
.. .. soil structure	631.434 :
erosion and	631.459 :
for arid soils	631.445.5 :
.. organic soils	631.411.4 :
.. pest control	632.7 :
.. podzol soils	631.445.2 :
.. sandy soils	631.435.1 :
grassland management and dispersion	631.414.05 : 633.2.03-
.. .. erosion	631.459 : 633.2.03-
in relation to contour cultivation	631.613 :
.. .. .. soil productivity	631.452 :
nitrogen fertilizers and	631.84 :
soil micro-organisms and	631.461 :
soil minerals and	631.4 : 549 :
<i>Crops</i> :	633.1-, 633.11-, 633.2.03-, 633.262-, 633.3-2.4-, 633.364-, 633.491-, 633.71-, 633.71-2.3-, 633.71-2.4-, 633.73-, 634-, 634.25-, 634.975-
(G) (42)631.445.1 : (42), (429), (567), (569.1), (669), (676.2/9), (678), (68.01), (68.01)633.11-, (68.01)633.2.03-, (689.7), (712)633.2.03-, (713), (729), (74), (76), (77), (79)	
Agriculture	63
(G) (4), (411), (42), (45), (458), (485), (495), (498), (52), (548.7), (55), (57), (584), (593), (61), (611), (612), (63), (669), (672), (673), (676.1), (677), (678), (679), (68.01), (718), (72), (728.1), (729), (75), (798), (81), (82), (86), (866), (87), (899), (914), (92), (931), (94), (95), (961), (988)	
<i>Agropyron cristatum</i>	633.289
Air	551.51
plant nutrition from the	631.811 :
Alaska	(789)
Alberta	(712.3)
Alder	634.973.662
for reclamation of waste land	631.615 :
Alfalfa <i>See</i> Lucerne	
Algae	631.466.3
in relation to erosion	631.459 :
.. solod soils	631.445.54 :

# FERTILIZERS AND GENERAL AGRONOMY

Algeria		(65)
Alkaline soils		631.415.3
afforestation of	634.957-	
disease of tea on	633.72-2.19-	
effect on roses	635.937.34-	
"    "    wheat	633.11-	
in glasshouses	635.98-	
manganese in	631.416.871.1 :	
phosphate fertilizers and	631.85 :	
pine growth on	634.975-	
salt balance under irrigation	631.67 :	
strawberry clover for	633.325-	
sulphate of ammonia and	631.841.1 :	
<i>tirak</i> disease of cotton and	633.51-2.19-	
(G) (46), (47), (518), (54), (82), (899)		
See also Solonchak ; Solonets		
Almond		634.55
(G) (54), (73)		
Aloes ( <i>Furcraea</i> )		633.883.252
Aluminium		546.621
effect on citrus	634.3 :	
Aluminium in soil		631.416.862.1
determination of	631.423.3 :	
"    "    exchangeable	631.423.7 :	
effect on hydrangea	635.937.12-	
Aluminium phosphate	See Iron and aluminium phosphates	
Ammonia in soil		631.416.11
determination of	631.423.3 :	
Ammoniacal fertilizers		631.841
Ammonification		631.461.1
nitrogen fixation and	631.461.51 :	
Ammonium chloride		631.841.2
effect on flax	633.52-	
Ammonium nitrate		631.842.4
for cotton	633.51-	
Ammonium phosphate. Ammoniated phosphates		631.859.1
for linseed flax	633.52-	
Ammonium sulphate		631.841.1
effect on apple	634.11-	
"    "    lodging of sugar cane	633.61-2.183-	
"    "    oak	634.972.1-	
for intercropped sugar cane	633.61-1.584-	
"    rice	633.18-	
"    sugar cane	633.61-	
Rhenania phosphate and	631.858 :	
Ammonium (calcium) thiocyanate		632.954.9
for control of Bermuda grass	633.261-	
"    "    potato wart	633.491-2.4-	
Anaerobic conditions		631.433.2
effect on avocado and citrus	634.653-	
nitrate fertilizers and	631.842 :	
Analysis (fertilizers)		545
of ammoniated phosphates	631.859.1 :	

## BIBLIOGRAPHY OF SOIL SCIENCE

545

of fertilizers	631.81 :	
.. guano	631.854 :	
.. limestones	631.821.1 :	
.. phosphate fertilizers	631.85 :	
.. potassium fertilizers	631.83 :	
Analysis, inorganic, of soil		631.423.3
soil analysis by micro-organisms and	631.427.4 :	
.. .. plants and	631.427.3 :	
Analysis, organic, of soil		631.423.4
of soil disinfectants	632.953 :	
Analysis, qualitative, of soil		631.422
for sugar cane	633.61-	
plant-physiological methods of		
analysis and	631.427.3 :	
spectrographic methods of	631.423 : 544.6 :	
technique for	631.42 :	
Anglo-Egyptian Sudan		(624)
Angola		(673)
Animal diseases		619
cobalt and	631.416.873 :	
cobalt fertilizers and	631.828 : 546.73 :	
copper and	631.416.856 :	
cyanamide and	631.841.5 :	
fertilizers and	631.813 :	
influenced by minerals in grassland	633.2.03-1.811 :	
in relation to soil fertility	631.452 :	
molybdenum and	631.416.877 :	
phosphate fertilizers and	631.85 :	
soil composition and	631.416 :	
Antarctica		(99)
Anthocyanins		547.973
soil nitrogen and	631.416.1 :	
Anthroposophy		149.918.6
composting and	631.875 :	
plant nutrition and	631.811 :	
Ants <i>See</i> Insect pests		
Apatite <i>See</i> Rock phosphate		
Apparatus		005
for determining permeability	631.425.23.	
.. .. soil moisture	631.425.22.	
.. .. soil-moisture capacity	631.425.24.	
.. measuring soil erosion	631.459.	
.. .. soil temperature	631.425.6.	
.. mechanical analysis	631.425.5.	
.. preparation of soil profiles	631.472.	
.. soil solution	631.418.	
.. .. testing	631.423.	
volumenometers	631.425.1.	
Apple		634.11
(G) (73), (74)		
Apricot		634.21
(G) (946)		

# FERTILIZERS AND GENERAL AGRONOMY

Archaeology	902.6
soil phosphate and	631.416.2 :
Archebionts	631.461 : 551.6
Arctic regions	(9)
Arctic soils	631.445.11
earthworms in	632.651.6 :
nodule bacteria in	631.461.52 :
Argentina	(82)
Arid soils	631.445.5
erosion of	631.459 :
forage plants for	633.2/3-
nitrogen fixation in	631.461.51 :
organic-matter decomposition in	631.461.1/3 :
potash in	631.416.4 :
superphosphate in	631.855 :
<i>See also</i> Desert soils	
Arrowroot	633.681
Arsenates as insecticides	632.951.23
Arsenic	546.19
in phosphate fertilizers	631.85 :
toxicity in soil	631.453 :
" towards peach	634.25-1.453 :
" " rice "	633.18-1.453 :
Arsenic in soil	631.416.319
Ashes as fertilizer	631.831
effect on mycorrhiza	631.466.1 :
from lignite and peat	631.878 :
Asia	(5)
Asparagus	635.31
<i>Aspergillus</i> method of analysis <i>See</i> Determination of plant nutrients by plants	
Asphalt	553.985
as mulch for establishment of plants	
from seed	631.544.7 :
Atmospheric condensation <i>See</i> Dew	
Australia	(94)
Austria	(436)
Availability of soil nutrients <i>See</i> Composition of soil ; Soil fertility	
Avocado	634.653
(G) (73), (943)	
Azalea	635.939.124
Azotobacter <i>See</i> Nitrogen fixation (non-symbiotic)	
Babassu	633.855.372
<i>See also</i> Carnauba	
Bacteria <i>See</i> Micro-organisms	
Bacterial-balance index	631.427.2
Bacterial diseases	632.3
soil protozoa and	631.467.1 :
spot of peach	634.25-
wilt of tobacco	633.71-

# BIBLIOGRAPHY OF SOIL SCIENCE

Bacteriophage	576.809.6
ammonification and	631.461.1 :
clover and	633.32 :
denitrification and	631.461.4 :
determination of	631.427.2 :
effect of physico-chemical properties	
of soil on	631.412 :
in lucerne soils	633.31-1.4 :
of nodule bacteria	631.461.52 :
Balsa ( <i>Ochroma</i> )	634.973.797
Banana	634.771
(G) (54), (671), (728), (729)	
Barium in soil	631.416.843.1
Barley	633.16
(G) (75), (76)	
Basalt	552.323.5
superphosphate and	631.855 :
Base exchange <i>See</i> Absorption	
Base-exchange capacity	631.414.3.03
determination of	631.423.7 :
of humus	631.417.2 :
of tropical soils	631.445.7 :
Basic slag	631.853
bone meal compared with	631.852 :
magnesium requirements of plants	
and	631.811.6 :
rock phosphate and	631.851 :
(G) (548.7)	
Bat guano	631.854 : 599.4
Beans	635.65
field experiments with	631.421 :
(G) (78), (943), (945)	
Beavers	599.32
in creation of meadows	633.2.03 :
in relation to erosion	631.459 :
Beetroot	633.41
Belgian Congo	(675)
Belladonna ( <i>Atropa</i> )	633.888.41
Bent grass ( <i>Agrostis</i> )	633.23
Bentonite. Zeolite	549.67
electrodes of	631.415.1 : 545.372 :
Bermuda grass, Star grass ( <i>Cynodon</i> )	633.261
Bibliographies	016
of avocado	634.653 :
„ boron in plant nutrition	631.811.9 : 546.27 :
„ maté	633.77 :
„ mycorrhizae	631.466.1 :
„ rubber plants other than <i>Hevea</i>	633.913:
„ soil conservation in Oklahoma	(76)631.459 : 631.61 :
„ urban-refuse disposal	631.879.1 :
„ wind erosion	631.459 : 551.55 :
Bilberry. Blueberry	634.73
(G) (74)	

# FERTILIZERS AND GENERAL AGRONOMY

Bindweed	632.594.2
Biodynamic methods	See Anthroposophy
Birch	634.972.6
Bitten-off disease of tea	633.72-2.19-1.415.3
Blackberry ( <i>Rubus</i> )	634.715
Black cotton soil	See Regur
Black currant	634.723
Black earth	See Chernozem
Black locust ( <i>Robinia</i> )	633.375
Blast-furnace slag	631.821 : 669.16
Bone meal	631.852
Boron	546.27
absorption in soils	631.414.3 :
ashes and	631.831 :
-calcium relation in plants	631.811.4 :
deficiency diseases and	632.19 :
" in apple	634.11-2.19 :
" " apricot	634.21-2.19 :
" " avocado	634.653-2.19 :
" " beet	633.41-2.19 :
" " cabbage species	635.34-2.19 :
" " cauliflower	635.35-2.19 :
" " celery	635.53-2.19 :
" " conifers	634.975-2.19 :
" " gloxinia	635.98-2.19 :
" " grape	634.8-2.19 :
" " grapefruit	634.323-2.19 :
" " lucerne	633.31-2.19 :
" " olive	634.63-2.19 :
" " pear	634.13-2.19 :
" " poppy	633.75-2.19 :
" " sugar beet	633.63-2.19 :
" " swedes	633.426-2.19 :
" " turnips and swedes	633.42-2.19 :
" " vegetables	635-2.19 :
" " walnut	634.51-2.19 :
effect on apple	634.11 :
" " beans	635.65 :
" " cereals	633.1 :
" " chernozems	631.445.4 :
" " cotton	633.51 :
" " crimson clover	633.327 :
" " flax	633.52 :
" " flax (linseed) in limed soil	633.52-1.821.1 :
" " fungal diseases of flax	633.52-2.4 :
" " jute	633.523 :
" " legumes	633.3 :
" " lucerne	633.31 :
" " nodule bacteria	631.461.52 :
" " peas	635.656 :
" " pecan	634.521 :
" " podzol soils	631.445.2 :
" " radish	635.15 :

## BIBLIOGRAPHY OF SOIL SCIENCE

	546.27
effect on red clover	633.321 :
.. .. soil micro-organisms	631.461 :
.. .. soybeans	633.34 :
.. .. strawberries	634.75 :
.. .. sunflower	633.854.78 :
.. .. sweet potato	633.492 :
.. .. tomato (and cucumber)	635.64 :
.. .. weeds	632.51 :
.. .. white clover	633.322 :
for control of flies in manure	631.86 : 632.7 :
in irrigation water	631.671 :
.. plant nutrition	631.811.9 :
liming and	631.821.1 :
(G) (47)631.851 ; (714)633.42-2.19 ; (73)632.19 ; (74)632.19 :	631.416.327
Boron in soils	
chemical determination of	631.423.3 :
plant-physiological determination of	631.427.3 :
Bracken	632.536
composting of	631.875 :
land for potatoes	633.491-1.5 :
Brassica	635.34/6
Brazil	(81)
British Empire	(41/42)
British Guiana	(881)
British Honduras	(728.2)
Brome grass	633.262
(G) (78)	
Broom	633.372
Brown earth, brown forest soil	631.445.3
(G) (52)	
Buckwheat ( <i>Fagopyrum</i> )	633.12
Buffalo grass ( <i>Buchloe</i> )	633.287
Buffering	631.413.1
base exchange and	631.414.3 :
chemical composition of soils and	631.416 :
See also Base-exchange capacity	
Buildings	699
erosion control near	631.459 : 631.61 :
Buried soils	631.4 : 551.8
humus from	631.417.2 :
Burma	(591)
Burning as a cultivation system. Shifting cultivation	631.589
effect on permeability	631.432.3 :
erosion and	631.459 :
of grassland	633.2.03-
.. sagebush	632.599.8 :
organic matter and	631.417 :
(G) (591), (68.01), 696	
Bush fruits	634.7
Cabbage. Kale. Savoy	635.34
(G) (78), (92)	

# FERTILIZERS AND GENERAL AGRONOMY

Cacao	633.74
(G) (671), (728.1), (729), (81)	
Cactus	633.292
Cadmium in soil	631.416.848
Caesium in soil <i>See under</i> Lithium	
Calcareous soils	631.411.2
chlorosis of flax on	633.52-2.19-
conifers on	634.975-
mechanical analysis of	631.425.5 :
phosphate in	631.416.2 :
Calined phosphates	631.858
Calcium in soil	631.416.7
chlorosis and	632.19 :
determination of	631.423.3 :
Neubauer method of determining	631.427.3 :
potassium and	631.416.4 :
Calcium-magnesium ratio in soil	631.416.7/8
magnesium fertilizers and	631.824 :
Calcium nitrate	631.842.6
Calcium requirements of plants <i>See</i> Lime requirement	
Cameroons	(671)
Camphor	633.956
Canada	(71)
Cape weed ( <i>Cryptostemma calandulaceum</i> )	632.599.8
Capillarity	631.414.1
ground water and	631.432 :
permeability and	631.432.3 :
soil moisture and	631.432.2 :
<i>See also</i> Permeability	
Caraway. Anise	635.75
Carbohydrates in soil	631.417.745.4
Carbonates in soil, determination of	631.423.6
Carbon black <i>See</i> Minor fertilizer constituents	
Carbon dioxide as fertilizer	631.829
Carbon disulphide	632.951.22
effect on soil fungi	631.466.1 :
" " soil sickness in orchards	634-
Carbon-nitrogen ratio	631.417.4
effect of green manure on	631.874 :
" " plant residues on	631.871 :
in compost	631.875 :
organic manures and	631.86/7 :
organic-matter decomposition and	631.461.1/3 :
soil nitrogen and	631.416.1 :
Carbon tetrachloride <i>See</i> Chlorinated hydrocarbons	
Cardamom	633.883.418.3
Carnation	635.946.69
Carnauba and other oil palms	633.855
Caroá (Bromeliaceae)	633.526.6
Carob. Locust tree	634.462
Carotene <i>See</i> Vitamins	
Carpet grass <i>See</i> Kikuyu grass	



# BIBLIOGRAPHY OF SOIL SCIENCE

Carrot	635.13
(G) (42)	
Cascara	633.883.259.45
Cashew	634.573
(G) (914)	
Cassava. Manioc	633.682
(G) (81)	
Cassia <i>tora</i>	633.883.259.42
Castilla, Castilloa	633.913.22
Castor ( <i>Ricinus</i> )	633.853.55
(G) (439)	
Catalysis	541.128
in soil	631.412 :
Catch crops <i>See</i> Cover crops	
Cauliflower	635.35
Celery	635.53
(G) (712)	
Cellulose-decomposing bacteria	631.461.61
nitrogen fixation and	631.461.51 :
Cellulosic compounds in soil	631.417.745.881
determination of	631.423.4 :
Central America	(728)
Central Asia (Turkestan, etc.)	(584)
Cereals	633.1
plot-technique studies with	631.42 :
(G) (63), (76), (941)	
Ceylon	(548.7)
Chayote ( <i>Sechium edule</i> )	635.627
Chernozem	631.445.4
afforestation of	634.957-
carbohydrates in	631.417.745.4 :
sugar beet on	633.63-
superphosphate on	631.855 :
(G) (469)	
Cherry	634.23
Chestnut	634.972.4
(G) (73)	
Chestnut-coloured soils	631.445.51
Chicory	633.78
Chile	(83)
Chillie. Paprika. Pimento ( <i>Capsicum</i> )	633.842
China	(51)
Chlorinated hydrocarbons	547.222
determination of	631.423.4 :
Chlorine	546.13
as soil disinfectant	632.953 :
effect on soil absorbing complex	631.414.3 :
rock phosphate and	631.851 :
Chlorine requirement of plants	631.811.8
of vegetables	635-
Chloroform <i>See</i> Chlorinated hydrocarbons	
Chloropicrin	547.414.8
as soil disinfectant	632.953 :

# FERTILIZERS AND GENERAL AGRONOMY

effect on composition of soil	631.416 :	547.414.8
for sterilization of manure	631.86 :	
" " " soil	631.462 :	
Chlorosis See Deficiency diseases		
Chromium		546.76
in plant nutrition	631.811.9 :	
Chromium in soil		631.416.876
determination of	631.423.3 :	
" " cobalt and	631.423.3 :	631.416.873 :
Chrysanthemum		635.939.98
<i>Chrysanthemum</i> (rabbit brush)		633.913.37
Cinchona		633.885.1
(G) (54), (728.1)		
Citronella. Lemongrass		633.812.42
Citrus		634.3
soil nitrite and	631.416.12 :	
(G) (52), (62), (941), (944), (961)		
<i>Citrus aurantifolia</i>		634.337
Clay colloids		631.414.2
as culture medium	631.42 :	
detection of, by staining	631.422 :	
humus and	631.417.2 :	
mechanical analysis of	631.425.5 :	
of chernozems	631.445.4 :	
" podzol soils	631.445.2 :	
" solonets soils	631.445.53 :	
" tropical soils	631.445.7 :	
plant nutrition and	631.811 :	
soil-moisture relationships	631.432.5 :	
weathering of	631.483 :	
(G) (46), (471), (77), (81)		
Clay soils		631.435.4
drainage of	631.62 :	
Clear cutting		634.952.2
Climate		551.58
agricultural systems and	631.58 :	
effect on crop yields	631.557 :	
" " growth of sugar cane	633.61-1.547.2 :	
" " internal cork of apple	634.11-2.19 :	
" " soil formation	631.48 :	
" " " temperature	631.436 :	
" " sugar cane	633.61 :	
evaporation and	631.432.21 :	
fungal diseases and	632.4 :	
plant nutrition and	631.811 :	
soil moisture and	631.432.2 :	
(G) (43)631.81 :		
Climatic-soil types		631.445
reaction of	631.415.1 :	
Clover		633.32
effect on soil structure	631.434 :	
in rice rotations	633.18-1.582 :	

# BIBLIOGRAPHY OF SOIL SCIENCE

Cobalt	546.73
effect of lime on	631.821.1 :
" " , with copper, on pasture	633.2.03 : 546.56 :
" " on molybdenum uptake	631.416.877 :
Cobalt in soil	631.416.873
determination of	631.423.3 :
(G) (931)	
<i>See also</i> Chromium	
Coconut	634.61
ashes as fertilizer	631.831 :
residues as manure	631.871 :
(G) (729), (89)	
Coffee	633.73
(G) (54), (624), (675), (676), (676.2/9), (729), (81), (87)	
Cohesion. Resistance to deformation	539.41
mechanical composition and	631.434 :
of soil	631.43 :
Colloidal properties of soils	631.414
Colloids <i>See</i> Clay colloids	
Colocasia	633.689
Colombia	(86)
Colour	061.6
mapping of soil	631.471 : 631.4.
of humus	631.417.2.
" soils	631.4.
Compaction of soil <i>See</i> Instruments for measuring compaction	
Composition and quality of plants	581.192
copper in soil and	631.416.856 :
effect of composition of soil	631.416 :
" " fertilizers	631.81 :
" " lime	631.821.1 :
" " mulching	631.544.7 :
" " nodule bacteria	631.461.52 :
" " soil	631.4 :
" " soil management	631.58 :
" " " moisture	631.432.2 :
of apples as influenced by manuring	634.11.-1.81 :
" " " " " nitrogen	
fertilizer	634.11-1.84 :
" " " " " soil calcium	634.11-1.416.7 :
" barley " " " cultivation	633.16-1.5 :
" " " " " manuring	633.16-1.81 :
" " " " " nitrogen	
fertilizing	633.16-1.84 :
" " " " " phosphate	
fertilizing	633.16-1.85 :
" beans " " " potassium	
fertilizer	633.65-1.83 :
" belladonna as " " nitrogen	
fertilizer	633.888.41-1.84 :
" bluegrass as " " soil nitrogen	633.21-1.416.1 :
" bracken	632.536 :
" buckwheat as " " manuring	633.12-1.81 :

# FERTILIZERS AND GENERAL AGRONOMY

581.192

of carrot	as influenced by	manuring	635.12-1.81 :
„ cereals	„ „	„ fertilizers	633.1-1.81 :
„ „	„ „	„ management	633.1-1.58 :
„ „	„ „	„ nitrogen	633.1-1.84 :
„ „	„ „	„ fertilizers	633.1-1.84 :
„ „	„ „	„ soil conditions	633.1-1.4 :
„ chrysanthemum	„ „	„ manuring	635.939.98-1.81 :
„ citrus	as „	„ cultivation	634.3-1.5 :
„ „	„ „	„ manuring	634.3-1.81 :
„ „	„ „	„ minor	634.3-1.811.9 :
„ „	„ „	„ elements	634.3-1.4 :
„ „	„ „	„ soil	634.61-1.81 :
„ coconut	„ „	„ manuring	634.61-1.81 :
„ conifers	„ „	„ nitrogen	634.975-1.84 :
„ cotton	„ „	„ fertilizers	633.51-1.5 :
„ „	„ „	„ cultivations,	633.51-1.811 :
„ „	„ „	„ etc.	634.62-1.81 :
„ „	„ „	„ nutrition	633.52-1.821.1 :
„ dates	„ „	„ manuring	633.52-1.81 :
„ flax	„ „	„ lime	633.52-1.811.91 :
„ „	„ „	„ manuring	633.52-1.811.91 :
„ „	„ „	„ moisture	633.52-1.811.91 :
„ „	„ „	„ supply	633.52-1.811.91 :
„ „ and linseed	„ „	„ phosphate	633.52-1.85 :
„ „	„ „	„ fertilizers	633.52-1.83 :
„ „	„ „	„ potassium	633.2/3-1.81 :
„ „	„ „	„ fertilizers	634-1.81 :
„ forage plants	„ „	„ manuring	633.41-1.81 :
„ fruit	„ „	„ „	633.41-1.81 :
„ garden beets	„ „	„ „	633.41-1.81 :
„ grapefruit	„ „	„ magnesium	634.323-2.19-1.811.6 :
„ „	„ „	„ deficiency	634.8-1.81 :
„ grapes	„ „	„ manuring	633.2-1.445.7 :
„ grasses on tropical soils	„ „	„ „	635.34-1.5 :
„ kale	„ „	„ „	633.283-1.81 :
„ Kikuyu and Napier grass	as influenced	„ „	633.913.32 :
„ „	by manuring	„ „	633.913.32-1.81 :
„ „	„ „	„ „	633.3-1.821.1 :
„ „	„ „	„ „	633.364-1.81 :
„ „	„ „	„ „	633.367-1.811.1 :
„ „	„ „	„ „	633.15-1.81 :
„ „	„ „	„ „	633.29-1.5 :
„ „	„ „	„ „	635.61-1.811.9 :
„ „	„ „	„ „	633.13-1.81 :
„ „	„ „	„ „	633.85-1.81 :
„ „	„ „	„ „	635.25-1.4 :
„ „	„ „	„ „	633.2.03-1.821.1 :

## BIBLIOGRAPHY OF SOIL SCIENCE

581.192

of pastures as influenced by liquid	
manure	633.2.03-1.862 :
management	633.2.03-1.58 :
manuring	633.2.03-1.81 :
nitrogen	
fertilizers	633.2.03-1.84 :
phosphate	
fertilizers	633.2.03-1.85 :
phosphate	
fertilizers	
and lime	633.2.03-1.85-1.821.1 :
soil	633.2.03-1.416 :
nitrogen	633.2.03-1.416.1 :
peaches	nitrogen
fertilizer	634.25-1.84 :
potassium	634.25-1.83 :
pecan during growth	634.521-1.811 :
plums as influenced by	irrigation
potatoes	cultivation
manuring	633.491-1.5 :
manuring and	633.491-1.81 :
irrigation	633.491-1.81-1.67 :
nitrogen	
fertilizers	633.491-1.84 :
potassium	
fertilizers	633.491-1.83 :
rape	manuring
potash	633.42-1.81 :
fertilizer	633.42-1.83 :
rice	ammonium
sulphate	633.18-1.841.1 :
manuring	633.18-1.81 :
soil	633.18-1.416 :
rocket ( <i>Eruca</i> ) as	magnesian
fertilizers	635.44-1.824 :
manuring	633.14-1.81 :
rye as	
rye grass	633.263-1.81 :
soybeans	
soils	633.34-1.81 :
spinach	phosphate
fertilizer	635.41-1.85 :
stramonium as	mineral
deficiencies	633.888.421-1.811 :
strawberry	irrigation
Sudan grass	634.75-1.67 :
nitrogen	
fertilizers	633.282-1.84 :
sugar beet	manuring
nitrogen	633.63-1.81 :
fertilizers	633.63-1.84 :
nitrogen	
status	633.63-1.811.1 :
potassium	
fertilizers	633.63-1.83 :

## 581.192

sugar beet as influenced by rotation	633.63-1.58 :
" " " " " soils	633.63-1.4 :
" sugar cane " " " lodging	633.61-2.183 :
" " " " " manuring	633.61-1.81 :
" " " " " nitrogen	
" " " " " fertilizers	633.61-1.84 :
" " " " " soil moisture	633.61-1.432.2 :
" " " " " soils	633.61-1.4 :
" tobacco " " " liming	633.71-1.821.1 :
" " " " " magnesium	633.71-1.824 :
" " " " " management	633.71-1.58 :
" " " " " manuring	633.71-1.81 :
" " " " " nitrogen	633.71-1.84 :
" " " " " organic	
" " " " " manure	633.71-1.86 :
" " " " " potash	633.71-1.83 :
" " " " " soil texture	633.71-1.435 :
" tomato " " " minor	
" " " " " elements	635.64-1.811.9 :
" " " " " soil	635.64-1.4 :
" tung " " " cultivation	633.854.56-1.5 :
" turnip " " " manuring	633.42-1.81 :
" vegetables " " "	635-1.81 :
" vetch " " "	633.35-1.81 :
" wheat " " " management	633.11-1.58 :
" " " " " manuring	633.11-1.81 :
" " " " " potash	
" " " " " fertilizers	633.11-1.83 :
" " " " " soil moisture	633.11-1.432.2 :
" " " " " soils	633.322-1.4 :
plant nutrition and	631.811 :
selenium in soil and	631.416.323 :
soil reaction and	631.415.1 :
See also Plant nutrition	
composition of soils (nutrient content, etc.)	631.416 :
clay and	631.414.2 :
effect of clover on	633.32-
" " crested wheat grass on	633.289-
" " cultivation on	631.51 :
" " draining on	631.62 :
" " earthworms on	632.651.6 :
" " irrigation on	631.67 :
" " liming on	631.821.1 :
" " mulching on	631.544.7 :
" " partial sterilization on	631.462 :
" " soil fauna on	631.468 :
" " fungi on	631.466.1 :
" " on orchards	634-
" " pastures	633.2.03-
farmyard manure and	631.86 :
green manure and	631.874 :
in relation to conifers	634.975-
" " " erosion	631.459 :

## BIBLIOGRAPHY OF SOIL SCIENCE

		631.416
nitrogen fertilizers and	631.84 :	
of alkali soils	631.415.3 :	
" forest "	634.9-	
" hardwood soils	634.972-	
" raspberry "	634.711-	
" rice "	633.18-	
" tropical "	631.445.7 :	
" vineyard "	634.8-	
organic-matter decomposition and	631.461.1/3 :	
phosphate fertilizers and	631.85 :	
soil formation and	631.48 :	
" micro-organisms and	631.461 :	
" moisture and	631.432.2 :	
" reaction and	631.415.1 :	
" texture and	631.435 :	
" type and	631.44 :	
technique for studying	631.42 :	
(G) (43), (43)634.8-, (494), (498), (68.01), (78), (86), (914)		
Composts		631.875
decomposition in	631.461.1/3 :	
for mushrooms	635.8-	
" tobacco	633.71-	
" vegetables	635-	
sewage sludge and	631.879.2 :	
(G) (698.2)		
Compound fertilizers		631.893
Conductivity. Resistance See Electrical conductivity		
Conifers		634.975
carbon-nitrogen ratio under	631.417.4 :	
(G) (689.7)		
Contact exchange	631.414.3 :	631.811
Contour cultivation. Terracing		631.613
effect on grass	633.2.03-	
" " wheat	633.11-	
erosion and	631.459 :	
for <i>Hevea</i>	633.912-	
" orchards	634-	
" tea	633.72-	
Napier grass for	633.283-	
(G) (68.01)631.459 :, (689.1)		
Copper		546.56
as fertilizer	631.828 :	
deficiency diseases	632.19 :	
" in avocado	634.653-2.19 :	
" " cereals	633.1-2.19 :	
" " forage plants	633.2/3-2.19 :	
" " forest trees	634.9-2.19 :	
" " grape	634.8-2.19 :	
" " tung	633.854.56-2.19 :	
effect on hemp on peat soils	633.522-1.411.4 :	
" " oats	633.13 :	
" " pasture	633.2.03 :	
" " rice	633.18 :	

# FERTILIZERS AND GENERAL AGRONOMY

		546.56
effect on wheat	633.11 :	
in organic soils	631.411.4 :	
„ plant nutrition	631.811.9 :	
Copper in soil		631.416.856
chemical determination of	631.423.3 :	
determination by micro-organisms	631.427.4 :	
(G) (941)		
Corrosion		620.19
as a measure of soil aeration	631.433.1 :	
effect of sulphur bacteria on	631.461.71 :	
in soils	631.4 :	
Cotton		633.51
ash as fertilizer	631.831 :	
fallows and	631.581 :	
field experiments on	631.421 :	
machinery for	631.3 :	
on alkali soils	631.415.3 :	
refuse as manure	631.871 :	
(G) (54), (548.7), (75), (76), (81)		
Cover crops. Mixed crops. Catch crops		631.584
effect on fungal disease of cotton	633.51-2.4-	
„ „ sugar cane	633.61-	
for avocado	634.653-	
„ citrus	634.3-	
„ Hevea	633.912-	
„ oil palm	633.855.34-	
„ orchards	634-	
„ peach orchards	634.25-	
„ pecan	634.521-	
„ raspberry	634.711-	
„ tung	633.854.56-	
legumes as	633.3-	
sugar beet as catch crop	633.63-	
use of fallows for	631.581 :	
(G) (43), (54)		
See also Green manure		
Cowpeas ( <i>Vigna</i> )		633.33
for green manure	631.874 :	
Cranberry		634.76
(G) (79)		
Crested wheat grass ( <i>Agropyron cristatum</i> )		633.289
weed control and	632.51 :	
Crimson clover		633.327
<i>Cryptostegia</i>		633.913.43
Cubé See Derris		
Cucumber. Gherkin		635.63
Cultivated crops		633.5
(G) (73), (92)		
Cultivation and tillage		631.51
control of <i>Agropyron repens</i> by	632.554.21 :	
„ „ bindweed by	632.594.2 :	
„ „ bracken by	632.536 :	
„ „ <i>Cirsium setosum</i> by	632.599.8 :	



## BIBLIOGRAPHY OF SOIL SCIENCE

	631.51
control of insect pests by	632.7 :
.. .. nut grass by	632.554.22 :
.. .. weeds	632.51 :
.. .. in tea plantations by	633.72-2.51-
effect on permeability	631.432.3 :
.. .. physical properties of soil	631.43 :
.. .. soil composition	631.416 :
.. .. .. nitrate	631.416.13 :
.. .. .. phosphate	631.416.2 :
.. .. .. structure	631.434 :
.. .. .. temperature	631.436 :
of arid soils	631.445.5 :
.. clay soils	631.435.4 :
.. podzol soils	631.445.2 :
organic-matter decomposition and reclamation of alkali soils by	631.415.36 :
<i>Crops</i> : 633.11-, 633.15-, 633.18-, 633.491-, 633.51-, 633.52-, 633.63-, 633.71-, 634.8-, 634.972-, 634.975-, 635-, 635.944, 635.964-	
(G) (45), (569)	
Cultural operations. Cultivation of crops	631.5
of pasture in relation to tsetse fly	632.7 : 633.2.03-
.. potatoes as affected by nematodes	633.491-2.2-
.. tea in relation to root disease	633.72-2.4-
soil micro-organisms in relation to	631.461 :
Cyanamide as fertilizer	631.841.5
effect on bracken	632.536 :
.. .. fungal diseases	632.4 :
.. .. sugar beet	633.63-
in hot-bed formation	631.544.3 :
Cyanamide as weed killer	632.954.6
Cyprus	(564.3)
Czechoslovakia	(437)
Dandelion	632.599.8
<i>Daphne</i>	635.938.65
Dates	634.62
.. soil temperatures under	631.436 :
(G) (64)	
Deciduous trees	634.972/4
Decomposition of organic matter	631.461.1/3
effect of fungi on	631.466.1 :
.. .. on soil structure	631.434 :
in compost	631.875 :
.. grassland	633.2.03-
.. peat	631.878 :
of farmyard manure	631.86 :
.. forest litter	634.989.84-
.. lupin residues	633.367-
Deficiency diseases. Chlorosis	632.19
copper in soil and	631.416.856 :

# FERTILIZERS AND GENERAL AGRONOMY

	632.19
<i>Crops</i> :	633.1-, 633.13-, 633.2/3-, 633.282-, 633.283-, 633.367-, 633.41-, 633.42-, 633.426-, 633.491-, 633.51-, 633.52-, 633.63-, 633.71-, 633.72-, 633.74-, 633.75-, 633.854.56-, 633.855.34-, 634-, 634.11-, 634.23-, 634.25-, 634.3-, 634.323-, 634.441-, 634.51-, 634.521-, 634.61-, 634.62-, 634.63-, 634.653-, 634.75-, 634.774-, 634.8-, 634.9-, 634.972.1-, 634.975-, 635-, 635.34-, 635.35-, 635.53-, 635.64-, 635.65-, 635.656-, 635.98-, 635.939.124-, 635.939.183-, 635.939.72-, 635.946.69-
(G) (417), (42), (68.01)634.3-, (714)633.42-, (73), (74), (77), (914)633.18-	
Denitrification	631.461.4
nitrite formation and	631.461.2 :
Density (specific gravity). Shrinkage	631.431
determination of	631.425.1 :
effect on soil structure	631.434 :
of organic soils	631.411.4 :
soil permeability and	631.432.3 :
„ porosity and	631.433.1 :
<i>See also</i> Soil moisture	
Density, determination of	631.425.1
Derris ( <i>Lonchocarpus</i> )	633.377
(G) (54), (595), (728.1), (729).	
Desert soils	631.445.55
nitrification in	631.416.13 :
Determination of plant nutrients by micro-organisms	631.427.4
Neubauer analyses and	631.427.3 :
Determination of plant nutrients by plants. Foliar diagnosis	631.427.3
in apple	634.11-
„ citrus	634.3-
„ cotton	633.51-
„ forest trees	634.9-
„ <i>Hevea</i>	633.912-
„ orchards	634-
„ potatoes	633.491-
„ sugar beet	633.63-
„ „ cane	633.61-
„ tobacco	633.71-
„ tung	633.854.56 :
Dew	551.574
effect on soil	631.432.4 :
Dewberry <i>See</i> Blackberry	
Dicyanodiamide	631.841.6
Dielectric constant. Capacitance	631.437.226.1
determination of soil moisture by	631.425.22 :
Diseases of plants, animals <i>See</i> Plant diseases; Animal diseases	
Disinfectants	632.953
cyanamide as	631.841.5 :
damping-off of pine and	634.975.2.4-
termite control and	632.732 :
Dispersion	631.414.05
density and	631.431 :

# BIBLIOGRAPHY OF SOIL SCIENCE

		631.414.05
flocculation and	631.414.04/	
Distillery waste		631.876.2
Dodder ( <i>Cuscuta</i> )		632.594.2
Drainage		631.62
erosion control and	631.459 :	
ground water and	631.432 :	
irrigation and	631.67 :	
of forested soil	634.9-	
„ organic soils	631.411.4 :	
reforestation and	634.957-	
(G) (42), (62), (75)631.411.4 :, (899)		
<i>See also</i> Irrigation		
Drainage water		631.621
Drought injury		632.112
to citrus	634.3-	
„ turf grasses	635.964-	
Dry farming		631.586
fallowing and	631.581 :	
organic matter and	631.417 :	
vegetable-growing under	635-	
(G) (534.5), (54), (569), (62), (79)		
Drying of soils. Evaporation		631.432.21
drainage and	631.62 :	
effect of cultivation on	631.51 :	
of rice fields	633.18-	
phosphorus in soil and	631.416.2 :	
Dune reclamation		631.612
(G) (74), (77)631.47 :		
<i>See also</i> Reclamation of waste land		
Earthworms		632.651.6
effect on soil structure	631.434 :	
East Africa		(676)
Ecology. Vegetation		581.5
air capacity of organic soils and	631.411.4 : 631.433 :	
alkali soils and	631.415.3 :	
burning and	631.589 :	
contoured grassland and	633.2.03-1.613 :	
erosion and	631.459 :	
freezing of soils and	631.436.6 :	
grassland management and	633.2.03-1.58 :	
height of water-table and	631.432 :	
land reclamation and	631.61 :	
„ use and	631.47 :	
of forest soils	634.9-1.4 :	
„ grassland manured with nitrogen	633.2.03-1.84 :	
„ heath soils	631.445.13 :	
„ silviculture	634.95 :	
„ tropical soils	631.445.7 :	
permeability and	631.432.3 :	
physical properties of organic soils in relation to	631.411.4 : 631.43 :	

# FERTILIZERS AND GENERAL AGRONOMY

	581.5
soil formation and	631.48 :
„ reaction and	631.415.1 :
surface mining and	631.612 :
water-holding capacity and	631.432.4 :
wind erosion and	631.459 : 551.55 :
(G) (43)633.2.03-1.4 ; (46)631.4 ; (548.7), (569)631.4 ;	
(65)631.4 ; (669)631.4 ; (676)631.4 ; (71)631.4 ;	
(712)631.4 ; (72)631.4 ; (728.2), (75)631.4 ; (77)631.4 ;	
(81)631.4 ; (829), (86), (862), (87), (94)631.445.7 ;	
(942)631.4 ; (969)631.4 :	
Economics	33
of cinchona cultivation	633.885.1-1.5 :
„ land reclamation	631.61 :
„ land settlement	631.47 :
„ manuring	631.81 :
„ soil conservation	631.459 : 631.61 :
„ „ fertility	631.452 :
(G) (42)63 :	
Ecuador	(866)
“Efficiency factors”	631.427.3 : 631.547.2
Egypt	(62)
Eire (Southern Ireland)	(417)
Electrical conductivity (resistance) of soil	631.437.31
moisture determination by	631.425.22 :
Electrical properties, determination of	631.425.7
in soil-corrosion cells	631.4 : 620.19 :
Electrical properties of soil	631.437
heating of hot beds and	631.544.3 :
weed control by	632.51 :
Electricity in agriculture	631.588.1
Electro-chemical properties of soil	631.413
of clay	631.414.2 :
„ humus	631.417.2 :
soil types and	631.44 :
Electrodes. Electrometric titrations	545.372
determination of pH with	631.415.1 :
„ „ „ of alkali soils	
with	631.415.3 :
in soil analysis	631.423 :
See also Dielectric constant ; Electrical conductivity	
Electrodialysis	631.437.36
determination of exchangeable	
cations by	631.423.7 :
phosphate and	631.416.2 :
Electron microscope	537.533
examination of clays with	631.414.2 :
mineralogical technique with	631.42 : 549 :
nodule-bacteria studies with	631.461.52 :
Electro-ultrafiltration	631.414.045.2
availability of soil nutrients and	631.416 :
Elm	634.972.8

# BIBLIOGRAPHY OF SOIL SCIENCE

England	(42)
Erosion	631.459
cover crops and	631.584 :
effect of cultivation on	631.51 :
.. .. mulching on	631.544.7 :
.. .. on legumes	633.3-
.. .. tree establishment	634.9-
field experiments on	631.421 :
grassland management for control of	633.2.03-1.58-
in coffee plantations	633.73-
land use and	631.47 :
mapping of	631.471 :
rye for control of	633.14-
shifting cultivation and	631.589 :
soil micro-organisms and	631.461 :
soybeans and	633.34-
strip-cropping and	631.582 :
tree species for control of	634.97-
(G) (42), (43), (469), (47), (495), (51), (564.3), (569), (569.1),	
(591), (669), (675), (68.01), (713), (729), (73), (74), (76),	
(77), (78), (8), (82), (92), (931), (941), (942), (946), (969)	
<i>See also</i> Stubble mulching ; Land reclamation	
Estonia	(474.2)
Eucalypts	633.887.1
Europe	(4)
Evaporation <i>See</i> Drying of soils	
Evaporation, determination of	631.425.221
Evening primrose	635.938.86
Exchange acidity	631.415.1 : 631.414.3
Exchange capacity <i>See</i> Base-exchange capacity	
Exchangeable anions	631.414.323
Exchangeable bases	631.414.324
aluminium	631.416.862.1 :
effect on organic-matter decomposition	631.461.1/3 :
.. .. permeability of soil	631.432.3 :
.. .. physical properties of soil	631.43 :
humus and	631.417.2 :
manganese (and iron)	631.416.871.1 :
of solonchak soils	631.445.52 :
phosphate fertilizers and	631.85 :
soil structure and	631.434 :
sulphur in plants and	631.811.7 :
(G) (471)631.414.2 :	
Exchangeable bases, determination of	631.423.7
Experimental methods and technique	631.42
for investigation of tropical soils	631.445.7 :
.. organic manures	631.86/7 :
.. wireworm investigations	632.7 :
soil permeability and	631.432.3 :
<i>See also</i> Field experiments	
Explosives. Blasting	631.513

# FERTILIZERS AND GENERAL AGRONOMY

Falkland Islands		(829)
Fallowing		631.581
alternate grass and	633.2.03-	
for cotton	633.51-	
" rice	633.18-	
" tobacco	633.71-	
soil nitrogen and	631.416.1 :	
Farmyard manure		631.86
effect of ashes on	631.831 :	
" on blueberry	634.73-	
" " grassland	633.2.03 :	
" " Napier grass and Guinea		
grass	633.283-	
" " <i>Nardus</i>	633.289-	
for citrus	634.3-	
superphosphate and	631.855 :	
weed control and	632.51 :	
Fennel		633.812.687
(G) (79)		
Fertility of soils		631.452
algae and	631.466.3 :	
carbon-nitrogen ratio in relation to	631.417.4 :	
effect of bluegrass on	633.21-	
" " cultivation on	631.51 :	
" " nodule bacteria on	631.461.52 :	
" " structure on	631.434 :	
" on establishment of grasses	633.2.03-	
humus and clay colloids in relation to	631.417.2 : 631.414.2 :	
nitrogen and	631.416.1 :	
soil colour and	631.4.061.6 :	
" composition and	631.416 :	
" profile and	631.472 :	
termites and	632.732 :	
tsetse fly and	632.77 :	
(G) (42), (43)		
Fertilizers (general)		631.81
borer damage to tea and	633.72-2.7-	
calcareous soils and	631.411.2 :	
capillarity and	631.414.1 :	
effect on buffer capacity of soil	631.413.1 :	
" " colloidal properties of soil	631.414 :	
" " deficiency manifestations in		
potatoes	633.491-2.19-	
" " free nitrogen fixation	631.461.51 :	
" " frost damage to citrus	634.3-2.111-	
" " " " tung	633.854.56-2.111-	
" " " " wheat	633.11-2.111-	
" " fungal disease of cotton	633.51-2.4-	
" " " " sugar beet	633.63-2.4-	
" " " " tobacco	633.71-2.4-	
" " germination	631.547.1 :	
" " nitrogen fixation by soybeans	633.34-1.461.52-	
" " organic matter	631.417 :	

## BIBLIOGRAPHY OF SOIL SCIENCE

		631.81
effect on plant diseases	632 :	
.. .. potato scab	633.491-2.4-	
.. .. rose disease	635.937.34-2.4-	
.. .. seed production of sugar beet	633.63-1.531-	
.. .. soil boron	631.416.327 :	
.. .. .. composition	631.416 :	
.. .. .. structure under pasture	633.2.03-1.434-	
.. .. virus disease of potatoes	633.491-2.8-	
farmyard manure and	631.86 :	
fungal diseases and	632.4 :	
green manure and	631.874 :	
in relation to erosion	631.459 :	
in rotations	631.582 :	
irrigation and	631.67 :	
lodging and	632.183 :	
organic manures and	631.86/7 :	
.. .. soils and	631.411.4 :	
plant nutrition and	631.811 :	
podzol soils and	631.445.2 :	
relation of lime to	631.821.1 :	
solonchets soils and	631.445.53 :	
terra rossa and	631.445.6 :	
water consumption by plants and	631.811.91 :	
Fertilizers, methods of application. Placement		631.816.3
of lime	631.821.1 :	
.. liquid manure	631.862 :	
.. nitrogen	631.84 :	
.. phosphate	631.85 :	
<i>Crops</i> : 633.1-, 633.11-, 633.2.03-, 633.4-, 633.491-, 633.63-1.547.1-,		
633.63-, 633.685-, 633.913.32-, 634-, 634.8, 634.972.8-,		
635-, 635.31-, 635.41-, 635.64-1.84-, 635.65-, 635.656-		
Fertilizers, production and storage of		631.812
ammonium nitrate	631.842.4 :	
.. .. sulphate	631.841.1 :	
basic slag	631.853 :	
compost	631.875 :	
compound fertilizers	631.893 :	
cyanamide	631.841.5 :	
farmyard manure	631.86 :	
lime	631.821.1 :	
liquid manure	631.862 :	
night soil	631.863 :	
organic manures	631.86/7 :	
phosphate fertilizers	631.85 :	
rock phosphate	631.851 :	
sewage sludge	631.879.2 :	
sodium nitrate	631.842.3 :	
superphosphate	631.855 :	
Fertilizers, properties and reaction of		631.813
ammoniated phosphates	631.859.1 :	
ammonium nitrate	631.842.4 :	
compound fertilizers	631.893 :	
cyanamide	631.841.5 :	

# FERTILIZERS AND GENERAL AGRONOMY

		631.813
nitrogen fertilizers	631.84 :	
phosphate fertilizers	631.85 :	
potassium salts	631.83 :	
towards vineyard soils	634.8-	
Fertilizers, time of application of		631.816.2
cyanamide to sugar beet	633.63-1.841.5-	
nitrogen	631.84 :	
.. to cereals	633.1-1.84-	
.. .. fruit trees	634.1-1.84-	
.. .. sugar cane	633.61-1.84-	
phosphate to wheat	633.11-1.85-	
superphosphate	631.855 :	
to blueberry	634.73-	
.. cereals	633.1-	
.. fruit trees	634-	
.. pecan	634.521-	
.. potatoes	633.491-	
.. strawberry	634.75-	
.. sugar beet	633.63-	
.. tea	633.72-	
.. tomato	635.64-	
Fibre plants		633.5
Field capacity <i>See</i> Water-holding capacity		
Field experiments (methods and technique)		631.421
fertilizer distributors for	631.333 :	
in greenhouse studies	635.98-	
plant-physiological methods of		
analysis and	631.427.3 :	
with cocoa	633.74-	
.. cotton	633.51-	
.. fertilizers	631.81 :	
.. fruit trees	634-	
.. maize	633.15-	
.. orange	634.31-	
.. potatoes	633.491-	
.. sugar cane	633.61-	
(G) (68.01)		
Fiji		(961)
Finland		(471)
Fire injury		632.187
Fish manure		631.867.4
Fixation (of nutrients by soils) <i>See</i> Absorption		
Flax. Linseed		633.52
effect of burnt soil on	631.589 :	
(G) (712), (75), (77), (78), (79), (82), (85), (931), (942), (945)		
Flies in manure		631.86 : 632.7
Flocculation		631.414.04
Flood control		627.51
soil (river) erosion and	631.459 :	
tree plantings for	634.957 :	
Flood injury		632.181
insect pests and	632.7 :	



# BIBLIOGRAPHY OF SOIL SCIENCE

Fluorine	546.16
phosphate fertilizers and	631.85 :
replacement of adsorbed phosphate by	631.414.3 : 631.416.2 :
rock phosphate and	631.851 :
Fluorine in soil	631.416.316
Fluorosis, dental	631.416.316 : 612.311.1
<i>See also under</i> Molybdenum	
Fodder crops	633.2.3
(G) (798), (8)	
Fodder mallow ( <i>Makra</i> )	633.29
Foliar diagnosis <i>See</i> Determination of plant nutrients by plants	
Forest litter	634.989.84
earthworms and	632.651.6 :
effect of fire on	632.187 :
of conifers	634.975 :
permeability and	631.432.3 :
Forest nurseries	634.956.4
Forestry	634.9
effects of trees on pasture	633.2.03 :
land reclamation and	631.61 :
on humus-carbonate soils	631.445.9*
soil erosion and	631.459 :
.. fauna in forests	631.468 :
.. fertility and	631.452 :
.. formation and	631.48 :
.. permeability and	631.432.3 :
(G) (41), (485), (714), (729), (76), (77), (931)	
Forest types	634.94
soil moisture and	631.432.2 :
Foundation soils <i>See</i> Roads	
France	(44)
Freezing of soil (effect of frost on soil)	631.436.6
forest associations and	634.97-
nitrification and	631.461.3 :
permeability and	631.432.3 :
French Equatorial Africa	(672)
Frost injury	632.111
phosphate fertilizers and	631.85 :
to citrus	634.3-
.. conifers	634.975-
.. peach	634.25-
.. tung	633.854.56-
.. wheat	633.11-
Fungal diseases	632.4
compost and	631.875 :
soil protozoa and	631.467.1 :
<i>Crops</i> : 633.1-, 633.11-, 633.15-, 633.18-, 633.3-, 633.491-,	
633.492-, 633.51-, 633.52-, 633.61-, 633.63-, 633.71-,	
633.72-, 633.842-, 634.3-, 634.771-, 634.972-, 634.975-,	
635.53-, 635.61-1.842-, 635.64-, 635.937.34-	
Fungi. Mycorrhiza	631.466.1
inoculation with	631.847.2 :

# FERTILIZERS AND GENERAL AGRONOMY

	631.466.1	
in relation to deficiency disease of		
pine	634.975-2.19-	
of conifers	634.975-	
" forest trees	634.9-	
" <i>Hevea</i>	633.912-	
" nut trees	634.5-	
soil toxicity and	631.453 :	
(G) (689.7)634.975-, (78)		
Gallium (and indium)		546.681
effect on citrus	634.3 :	
Gallium in soil		631.416.868.1
Gambia pea		633.372
for green manure	631.874 :	
Gardenia		635.939.72
Garlic		635.262
Gas		665.7
effects on potatoes	633.491 :	
Geology		55
soil science and	631.4 :	
" types and	631.44 :	
(G) (411)631.4 :, (411)631.821.1 :, (712)631.4 :, (713)631.4 :		
Germany		(43)
Germination		631.547.1
effect of electric current on	631.437 :	
" " soil moisture on	631.432.2 :	
lime requirements of plants and	631.811.4 :	
of grass seeds in relation to soil		
fertility	633.2.03-1.452-	
" kok-saghyz	633.913.32-	
" sugar beet	633.63-	
" " cane	633.61-	
<i>See also</i> Seeds		
Ginseng ( <i>Panax</i> )		633.815.889.2
Gley		631.48 : 631.432
Glycerophosphate		631.85 : 547.426.1
Goats		636.39
and erosion	631.459 :	
Goitre		616.44-006.5
iodine in soil in relation to	631.416.315 :	
Gold Coast		(667)
Gorse		632.573.6
Granulation		539.215
effect on lime	631.821.1 :	
" " rock phosphate	631.851 :	
fertilizer placement and	631.816.3 :	
of fertilizers	631.81 :	
Grapefruit		634.323
Grapes		634.8
refuse as manure	631.871 :	
Grasses		633.2
as plant indicators	631.415.7 :	

## BIBLIOGRAPHY OF SOIL SCIENCE

		633.2
establishment under maize	633.15 :	
in relation to erosion	631.459 :	
Grassland		633.2.03
in relation to erosion	631.459 :	
liquid manure for	631.862 :	
mole-draining of	631.62 : 628.862.6 :	
on solonets soils	631.445.53 :	
sewage irrigation of	631.879.2 :	
soil structure of	631.434 :	
tsetse fly and	632.77 :	
white clover in	633.322 :	
(G) (411), (42), (43), (469), (485), (54), (569), (673), (676.1), (68.01), (698.2), (712), (74), (75), (76), (77), (78), (79), (82), (899), (931), (945), (961)		
<i>See also</i> Lawns; Aerodromes		
Grassland reclamation		631.611
Grazing		636.084.22
effect on ditches	631.62 :	
Greece		(495)
Greenhouse plants		635.98
soil fertility tests for	631.422 :	
Greenland		(988)
Green manure		631.874
effect on organic matter	631.417 :	
for coffee	633.73-	
„ cotton	633.51-	
„ forest nurseries	634.956.4-	
„ maize	633.15-	
„ podzol soils	631.445.2 :	
„ potatoes	633.491-	
„ rice	633.18-	
„ vegetables	635-	
in relation to strawberry disease	634.75.2-	
(G) (944), (945)		
<i>See also</i> Cover crops		
Grey-speck disease of oats		633.13-2.19
Grinding		539.215
effect on base-exchange properties	631.414.3 :	
Ground nut <i>See</i> Peanut		
Ground water		631.432
alkali soils and	631.415.3 :	
capillarity and	631.414.1 :	
effect on apple	634.11-	
„ „ avocado	634.653-	
„ „ maize	633.15-	
„ „ oak	634.972.1-	
„ „ sweet clover	633.366-	
„ „ vegetables	635-	
effects on or of forests	634.9-	
for irrigation	631.671 :	
soil moisture and	631.432.4 :	
(G) (79)		

# FERTILIZERS AND GENERAL AGRONOMY

Guano		631.854
oilcakes and	631.876 :	
Guatemala grass ( <i>Tripsacum</i> )		633.281
Guava		634.42
Guayule ( <i>Parthenium argentatum</i> )		633.913.31
Guinea grass <i>See</i> Kikuyu grass		
Gypsum		631.821.2
effect on clover	633.32-	
" " cotton	633.51-	
" " nitrogen fixation	631.461.52 :	
reclamation of alkali soils with	631.415.36 :	
-urea	631.841.7 :	
Halogens		546.13/6
effect on soil manganese	631.416.871.1 :	
Hardpan <i>See</i> Clay colloids		
Hardwoods		634.972
Harrowing		631.514
effect on grassland	633.2.03-	
Hawaiian Islands		(969)
Heat, effect on soil		631.436.5
effect on black cotton soil	631.445.72 :	
" " forest macrofauna	634.9-1.468-	
" " tropical soils	631.445.7 :	
Heat of wetting of soils	631.432.4 :	536.666
Heath soils		631.445.13
Heather as a weed		632.591.24
Hemp		633.522
(G) (77), (83)		
Henecquen		633.526.22
High-moor soils		631.445.12
Hoeing		631.516
<i>See also</i> Drying of soils ; Mulching		
Holland		(492)
Hops		633.79
(G) (79)		
Hormones <i>See</i> Plant-growth substances		
Hot beds		631.544.3
for sweet potato production	633.492-	
" tobacco seed-beds	633.71-	
Humidity, atmospheric		551.57
plant nutrition and	631.811 :	
Humus		631.417.2
determination of	631.423.4 :	
electrochemical properties of	631.413 :	
formed by soil fauna	631.468 :	
in tropical soils	631.445.7 :	
microscopic investigations of	631.42 : 535.82 :	
of forest soils	634.9-	
phosphate fertilizers and	631.85 :	
soil structure and	631.434 :	

# BIBLIOGRAPHY OF SOIL SCIENCE

(G) (43), (79)	631.417.2
See also Organic matter	
Hungary	(439)
Hydrangea	635.937.12
Hydrastis	633.881.33
Hydrocarbons in soil	631.417.791
Hydrolytic acidity See Exchange acidity	
Hydroponics See Water culture	
Hygroscopicity, determination of	631.425.25
See also Soil moisture, determination of	
Hygroscopicity of soils	631.432.5
water-holding capacity and	631.432.4 :
See also Heat of wetting	
<i>Imperata cylindrica</i>	632.588.1
India	(54)
Indicator plants	631.415.7
for fruit-growing	634-
of alkali soils	631.415.3 :
.. seleniferous soils	631.416.323 :
(G) (676.1)	
See also Ecology	
Indicators, chemical	545.371
pH measurements with	631.415.1 :
Indigo	633.862.4
Indo-China	(59)
Industrial residues as fertilizers	631.876.9
for sugar beet	633.63-
sugar-cane press mud and nitrogen	
fixation	631.461.5 : 633.61-
Infiltration See Permeability ; Porosity ; Run-off	
Inoculation, bacterial	631.847.2
for conifers (mycorrhizal)	634.975-1.466.1-
of cereal seed	633.1-
.. lupins	633.367-
.. peas	635.656-
.. soya beans	633.34-
.. wheat seed	633.11-
.. white clover	633.322-
with azotobacter	631.461.51 :
See also Nitrogen fixation, symbiotic	
Insecticides	632.951.2
Insect pests	632.7
cotton and	633.51-
erosion and	631.459 :
flax and	633.52 -
in farmyard manure	631.86 :
moisture relations of	631.432.4 :
potatoes and	633.491-
sugar cane and	633.61-
tea and	633.72-
(G) (42)	
See also Termites	

# FERTILIZERS AND GENERAL AGRONOMY

struments for measuring compaction	631.43 : 620.154
odine	546.15
effect on tomato	635.64 :
in plant nutrition	631.811.9 :
odine in soil	631.416.315
ran	(55)
raq	(567)
ris	635.935.79
ron	546.72
deficiency	632.19 :
" in azalea	635.939.124-2.19 :
" " grape	634.8-2.19 :
" " tung	633.854.56-2.19 :
effect in peat	631.878 :
" on soil colloids	631.414.2 :
(G) (77)631.414.2 :	
Iron and aluminium phosphates	631.859
Iron in soil	631.416.872
determination of	631.423.3 :
in chernozems	631.445.4 :
" organic soils	631.411.4 :
Irrigation	631.67
alkali soils and	631.415.3 :
effect on soil temperature	631.436 :
foliar diagnosis in relation to	631.427.3 :
ground water and	631.432 :
influence of cropping on soils under	631.416 : 631.58 :
land use and	631.47 :
mapping for	631.471 :
reclamation of alkali soils by	631.415.36 :
rotations and	631.582 :
soil solution and	631.418 :
wireworms and	632.7 :
with sewage	631.879.2 :
Crops : 633.11-, 633.15-, 633.18-, 633.2.03-, 633.31-, 633.491-,	
633.491-1.81-, 633.491-1.874-, 633.51-, 633.525.1-,	
633.61-, 633.63-, 633.913.31-, 634-, 634.13-, 634.22-,	
634.3-, 634.58-, 634.75-, 635-, 635.25-, 635.64-1.81-,	
635.656-, 635.98-	
(G) (54), (54)633.51-, (564.3), (569), (569)633.2.03-, (569.1),	
(76)635-, (78), (78)633.63-, (79), (79)633.2.03-, (944),	
(944)634.3-, (945)633.2.03-, (961)633.18-	
See also Water meadows	
Irrigation equipment	631.347.2
Irrigation water	631.671
effect on cranberry	634.76-
Italy	(45)
Japan	(52)
Jerusalem artichoke ( <i>Helianthus</i> )	633.494
(G) (961)	
Johnson grass	632.554.21

# BIBLIOGRAPHY OF SOIL SCIENCE

<i>Juncus</i>	633.527.5
Jute	633.523
Kainite	631.833.3
wireworm control with	632.7 :
Kamchatka	(573)
Kapok ( <i>Ceiba pentandra</i> )	633.513
Kenaf ( <i>Hibiscus</i> )	633.524.3
Kenya	(676.2.9)
Kikuyu grass ( <i>Pennisetum clandestinum</i> ). Napier grass ( <i>P. purpureum</i> ). Guinea grass ( <i>Panicum maximum</i> ). Carpet grass ( <i>Eleonopus affinis</i> ). <i>Melinis</i> <i>minutiflora</i>	633.283
Dallis and carpet grasses	633.266 :
fire-injury prevention	632.187 :
Kok-saghyz ( <i>Leonodon taraxacum</i> . <i>Taraxacum</i> <i>kok-saghyz</i> )	633.913.32
Korea	(519)
Kudzu	633.379
for soil conservation	631.61 :
Kurajong ( <i>Brachyctonus</i> )	634.973.798
Ladino clover	633.322
(G) (74)	
Lakes. Ponds	551.481
effect of submergence on podzol soil	631.445.2 :
microbial activities in lake soil	631.461 :
Land classification, utilization and survey	631.47
erosion in relation to	631.459 :
soil conservation and	631.61 :
types and	631.44 :
(G) (42)633.2.03-, (429), (438), (492), (494), (569), (6), (68.01), (712), (713), (715), (716), (729), (73), (74), (75), (76), (77), (78), (79), (81), (94), (941), (961), (969)	
See also Mapping : Soil survey	
Land reclamation	631.61
colloid chemistry of soil and	631.414 :
erosion control	631.459 :
in coffee	633.73-1.459-
eucalypts for	633.887.1-
grass for	633.2.03-
insect pests and	632.7 :
Johnson grass for	632.554.21 :
legumes for erosion control	633.3-1.459-
of heath soils	631.445.13 :
orchards	634-
rye for	633.14-1.459-
sweet clover for	633.366-
wind erosion control	631.459 : 551.55 :
(G) (42)631.435.1 :, (42), (429), (494), (55), (664), (669), (68.01), (68.01)633.61-, (75)631.411.4 :, (78)633.2.03-, (87), (942)	

# FERTILIZERS AND GENERAL AGRONOMY

Lantana	632.594.91
Larch <i>See</i> Conifers	
Laterite, lateritic soils	631.445.73
(G) (59)	
<i>See also</i> Tropical soils	
Law. Legislation	34
relating to land use	631.47 :
termites and	632.732 :
Lawns. Turf	635.964
(G) (74), (76)	
Leafy spurge ( <i>Euphorbia esula</i> )	632.575.7
Leek <i>See</i> Onion	
Legumes	633.3
effect on soil composition	631.416 :
for green manure	631.874 :
(G) (76), (943)	
Lemon	634.334
(G) (945)	
<i>See also</i> 634.653-1.432.2	
<i>Leptospermum</i>	633.812.67
Lespedeza	633.364
(G) (75)	
Lettuce	635.52
<i>Leucaena</i>	634.461
Libya	(612)
Light. Shading	535.21
ecology of soil algae and	631.466.3 :
effect in rice cultivation	633.18-1.5 :
on cacao and soil moisture	633.74-1.432.2 :
nitrogen fixation	631.461.5 :
losses	631.461.4 :
soil nitrogen	631.416.1 :
nitrogen-potash relationships	631.83/4 :
Lignin	547.458.84
decomposition of	631.461.1/3 :
humus from	631.417.2 :
synthesis by fungi	631.466.1 :
Lilac	635.939.31
Lime	631.821.1
effect on grassland manured with	
phosphate	633.2.03-1.85-
fungus diseases of wheat	633.11-2.4-
soil boron	631.416.327 :
calcium	631.416.7 :
phosphate	631.416.2 :
sulphur	631.416.322 :
farmyard manure and	631.86 :
for podzol soils	631.445.2 :
sandy soils	631.435.1 :
tropical soils	631.445.7 :
magnesium fertilizers and	631.824 :
nitrogen fertilizers and	631.84 :
phosphate fertilizers and	631.85 :



# BIBLIOGRAPHY OF SOIL SCIENCE

sewage and	631.879.2 :	631.821.1
superphosphate and	631.855 :	
<i>Crops</i> :	633.2.03-, 633.3-, 633.31-, 633.491-, 633.52-, 633.71-, 633.913.32-, 634-, 634.73-, 634.9-, 634.975-	
(G) (411), (931), (941)		
Lime requirement. Lime in plant nutrition		631.811.4
chlorosis of citrus and	634.3.2.19-	
.. .. flax and	633.52.2.19-	
.. .. lupins and	633.367.2.19-	
deficiency in conifers	634.975.2.19-	
determination of	631.423.3 :	
nodulation in peas and	635.656-1.461.52-	
of carrot	635.13-	
.. forest soils	634.9-	
.. marsh soils	631.411.4 :	
.. mulberry	634.38-	
.. potatoes	633.491-	
.. spinach	635.41-	
potassium requirements of plants	631.811.3 :	
<i>See also</i> Calcium in soil		
Linseed <i>See</i> Flax		
Liquid manure		631.862
effect on fruit trees	634-	
.. .. grassland	633.2.03-	
Lithium		546.34
effect on fungal diseases of wheat	633.11-2.4 :	
plant diseases and	632 :	
Lithium, rubidium and caesium in soils		631.416.834/6
Livestock		636
fertilizer production and	631.812 :	
Lodging		632.183
in sugar cane	633.61-	
Loess		551.311.33
soils, mineralogy of	631.4 : 549 :	
.. origin and formation of	631.48 :	
.. physical properties of	631.43 :	
(G) (77)		
<i>Lonchocarpus</i> <i>See</i> Derris		
Lotus <i>See</i> Trefoil		
Lucerne		633.31
effect on mobility of humus	631.417.2 :	
(G) (47), (946)		
Lupin		633.367
for green manure	631.874 :	
.. improvement of forest plantations	634.9-1.81 :	
Lysimetry		631.622
Macrofauna		631.468
erosion and	631.459 :	
of forest soils	634.9-	
Magnesium fertilizers		631.824
effect on potash response of cotton	633.51-1.83-	

# FERTILIZERS AND GENERAL AGRONOMY

		631.824
for cotton	633.51-	
" rocket ( <i>Eruca</i> )	635.44-	
" tobacco	633.71-	
lime and	631.821.1 :	
water requirements of plants and	631.811.91 :	
(G) (73)		
Magnesium in plant nutrition		631.811.6
deficiency in apple	634.11-2.19-	
" " beans	635.65-2.19-	
" " citrus	634.3-2.19-	
" " fruit trees	634-2.19-	
" " grapefruit	634.323-2.19-	
" " horticultural crops	635-2.19-	
" " oil palm	633.855.34-2.19-	
" " primula	635.939.183-2.19-	
" " tomato	635.64-2.19-	
of citrus	634.3-	
" sugar beet	633.63-	
" tobacco	633.71-	
potassium fertilizers and	631.83 :	
Magnesium in soil		631.416.846
determination of	631.423.3 :	
" " by <i>Aspergillus</i>		
method	631.427.4 :	
" " exchangeable	631.423.7 :	
magnesium fertilizers and	631.824 :	
rapid chemical test for	631.422 :	
(G) (43), (47)		
Magnesium phosphate		631.859.42
serpentine superphosphate	631.855 :	
Maize		633.15
interplanted with legumes	633.3-1.5 :	
" " peanut	634.58-1.5 :	
(G) (68.01), (77), (914), (931)		
Malaria		616.936
rice irrigation and	633.18-1.67 :	
soil erosion and	631.459 :	
soil reaction and	631.415.1 :	
Malaya		(595)
Manchuria		(518)
Manganese		546.711
and boron for cotton	633.51 : 546.27 :	
" " " tomato	635.64 : 546.27 :	
" " " in plant nutrition	631.811.9 : 546.27 :	
as fertilizer	631.828 :	
bracken chlorosis and	632.536 : 632.19 :	
calcium requirements of plants and	631.811.4 :	
concretions	631.414.2 :	
deficiency diseases	632.19 :	
" in cereals	633.1-2.19 :	
" " cherry	634.23-2.19 :	
" " citrus	634.3-2.19 :	
" " fruit trees	634-2.19 :	

## BIBLIOGRAPHY OF SOIL SCIENCE

546.711

deficiency in oats	633.13-2.19 :
.. .. peach	634.25-2.19 :
.. .. peas	635.656-2.19 :
.. .. tomato	635.64-2.19 :
.. .. tung	633.854.56-2.19 :
.. .. walnut	634.51-2.19 :
effect on lodging	632.183 :
.. .. red clover	633.321 :
.. .. rice	633.18 :
.. .. soil micro-organisms	631.461 :
.. .. wheat	633.11 :
for sugar beets	633.63 :
in basic slag	631.853 :
in plant nutrition	631.811.9 :
in relation to magnesium deficiency of beans	635.65-2.19-1.811.6 :
(G) (77)632.19 :	
Manganese in soil	631.416.871.1
and phosphate in relation to wheat yields	633.11-1.416.2- 633.73-
coffee and	631.423.3 :
determination of	
(G) (81)	
Mango	634.441
Mangold	633.426
Mangosteen ( <i>Garcinia</i> )	634.471
Manitoba	(712.7)
Manure distributors	631.333
Mapping and surveying	631.471
for drainage	631.62 :
for land reclamation	631.61 :
(G) (81). (931)634.9-	
Marine ooze	551.35
boron deficiency diseases and	632.19 : 546.27 :
Marine reclamation	631.616
for rice	633.18-
rice grass for	633.287-
Marl <i>See</i> Soil amendments	
Maté. Yerba maté	633.77
Mauritius	(698.2)
Meadow foxtail ( <i>Alopecurus pratensis</i> ). Esparto	633.285
Meadow grass. Blue grass ( <i>Poa</i> )	633.21
Meadows <i>See</i> Grassland	
Mechanical analysis	631.425.5
Mechanical composition of soil. Texture	631.435
base exchange and	631.414.3 :
.. .. capacity and	631.414.3.03 :
.. .. capillary rise and	631.414.1 :
.. .. drainage and	631.62 :
.. .. effect on tobacco	633.71-
.. .. in relation to erosion	631.459 :
.. .. of tropical soils	631.445.7 :
.. .. soil moisture and	631.432.2 :

# FERTILIZERS AND GENERAL AGRONOMY

	631.435
soil structure and	631.434 :
„ type and	631.44 :
thermal conductivity and	631.436 :
(G) (712), (713)633.71-	
Medicinal plants	633.88
Melon	635.61
(G) (584)	
Membrane electrodes	631.415.1 : 545:372 : 549.67
Metaphosphate	631.85 : 546.185
Methane	547.211
fume injury from	632.184 :
Mexico	(72)
Microbiological analysis of soil	631.427.2
Micro-organisms	631.461
effect on soil structure	631.434 :
humus and	631.417.2 :
in alkali soils	631.415.3 :
in arctic soils	631.445.11 :
in chestnut soils	631.445.51 :
relation to avocado decline	634.653-1.453-
„ „ manganese deficiency in	
oats	633.13-2.19 : 546.711 :
„ „ strawberry disease	634.75-2-
(G) (52), (57), (99)	
Micropedology	631.42 : 535.82
Microscopy	535.82
aggregate analysis by	631.425.4 :
mechanical analysis by	631.425.5 :
technique of	631.42 :
Middle-western United States (Colorado, Kansas, Montana, Nebraska, New Mexico, North Dakota, South Dakota) (78)	
Milk	637.1
relationship between soil reaction and	631.415.1 :
Millet	633.17
Mineralogy	549
as index of fertility	631.452 :
base exchange and	631.414.3 :
„ „ capacity and	631.414.3.03 :
hydration and	631.432.4 :
mechanical analysis and	631.425.5 :
of alkali soils	631.415.3 :
„ calcareous soils	631.411.2 :
„ clay	631.414.2 :
„ desert soils	631.445.55 :
„ podzolic soils	631.445.2/3 :
„ podzols	631.445.2 :
„ rock phosphate	631.851 :
„ soils	631.4 :
„ tropical soils	631.445.7 :
phosphate fixation and	631.416.2 : 631.414.3 :
soil classification and	631.44 :
„ formation and	631.48 :
„ permeability and	631.432.3 :

## BIBLIOGRAPHY OF SOIL SCIENCE

549

technique of	631.42 :	
(G) (437)631.4 : (46)631.414.2 : (81)631.4 :		
Minor elements in plant nutrition		631.811.9
deficiency diseases and	632.19 :	
determination of	631.423.3 :	
effect on citrus	634.3-	
.. .. conifers	634.975-	
.. .. cucumber	635.63-	
.. .. flax	633.52-	
.. .. frost injury to citrus	634.3-2.111-	
.. .. fungi	631.466.1 :	
.. .. grassland	633.2.03-	
.. .. melon	635.61 -	
.. .. nitrogen-fixing and other bacteria	631.461.52 :	
.. .. orange	634.31-	
.. .. organic-matter decomposition	631.461.1/3 :	
.. .. potatoes	633.491-	
.. .. rice	633.18-	
.. .. roses	635.937.34-	
.. .. tomato	635.64-	
fertilizer content of	631.81 :	
for hops	633.79-	
.. peppermint	633.822-	
.. sunflower	633.854.78-	
frost injury and	632.111 :	
in organic soils	631.411.4 :	
.. seaweed	631.873 :	
.. sewage	631.879.2 :	
.. sugar beet	633.63-	
.. .. cane	633.61-	
magnesium requirements of plants and	631.811.6 :	
relation of acidity to growth of		
pineapple and	634.774-1.415.1-	
technique for study of	631.42 :	
(G) (417)632.19 : (42)632.19 : (437), (68.01)634.3-2.19-		
Minor elements (metallic) of soil		631.416.8
determination by micro-organisms	631.427.4 :	
Minor fertilizer constituents		631.828
effect of carbon black on tobacco	633.71-	
Mixed crops See Cover crops		
Moisture capacity See Water-holding capacity of soil		
Moisture capacity, determination of		631.425.24
Molasses		664.15
as fertilizer	631.876.9 :	
.. .. for rice	633.18-1.876.9 :	
decomposition of	631.461.1/3 :	
effect on nitrogen fixation	631.461.5 :	
Mole drainage	631.62 : 626.862.6	
Mole ploughs	631.312.364	
Molybdenum		546.77
as fertilizer	631.828 :	

# FERTILIZERS AND GENERAL AGRONOMY 546.77

effect on azotobacter	631.461.51 :
"    "  clover	633.32 :
"    "  lettuce	635.52 :
"    "  lucerne	633.31 :
"    "  pasture	633.2.03 :
"    "  subterranean clover	633.326 :
"    "  tomato	635.64 :
in legume nodules	631.461.52 :
"  plant nutrition	631.811.9 :
legumes and	633.3 :
relation of deficiency diseases to	
copper and	632.19 : 546.56 :
Molybdenum in soil	631.416.877
determination of	631.423.3 :
Moon	523.32
effect on germination	631.547.1 :
"    "  plant growth	631.547.2 :
Moor soils	631.445.1
(G) (42)	(64)
Morocco	631.4 : 551.432
Mountain soils	(679)
Mozambique	633.363
Mucuna.  Edua pea	634.38
Mulberry	631.544.7
Mulching.  Soil protection	
compared with cover-cropping	631.584 :
cover crops in peach orchards and	634.25-1.584-
effect on blueberry	634.73-
"    "  cocoa	633.74-
"    "  coffee	633.73-
"    "  cotton	633.51-
"    "  raspberry	634.711 -
"    "  soil moisture	631.432.2 :
"    "  strawberry	634.75-
"    "  tree growth	634.9-
"    "  tung	633.854.56-
"    "  turmeric	633.861.3-
evaporation and	631.432.21 :
hoeing and	631.516 :
in apple orchards	634.11-
in relation to erosion	631.459 :
See also Stubble mulching	
Mushroom	635.8
(G) (73)	
Mvule ( <i>Chlorophora excelsa</i> )	634.973.635.2
(G) (676.1)	
Mycorrhiza See Fungi	
Napier grass See Kikuyu grass	
Narcissus	635.935.724
Nardus	633.289
Nematode diseases	632.2
fungi and	631.466.1 :

## BIBLIOGRAPHY OF SOIL SCIENCE

		632.2
of potatoes	633.491-	
.. sugar beet	633.63-	
.. tobacco	633.71-	
Netherlands Indies		(92)
Nettle ( <i>Urtica</i> )		633.524.635.3
Neubauer method	See Determination of plant nutrients by plants	
New Brunswick		(715)
Newfoundland		(718)
New Guinea		(95)
New South Wales		(944)
New Zealand		(931)
Nigeria		(669)
Night soil		631.863
See also Sewage		
Nitrate fertilizers		631.842
effect on melon	635.61-	
Nitrate in soil		631.416.13
determination of	631.423.3 :	
effect of mulching on	631.544.7 :	
in organic soils	631.411.4 :	
.. solonchaks	631.445.52 :	
of orchards, as affected by		
management	634.158-	
plant indicators of	631.415.7 :	
sodium chlorate and	632.954.8 :	
soil moisture and	631.432.2 :	
under cotton	633.51-	
Nitre soils	See Solonchak	
Nitrification		631.461.3
effect of potassium fertilizers on	631.83 :	
in black cotton soil	631.445.72 :	
.. forest litter	634.989.84-	
Nitrite-forming organisms		631.461.2
Nitrite in soil		631.416.12
determination of	631.423.3 :	
effect on citrus	634.3-	
Nitrogen fertilizers		631.84
effect on bacterial spot of peach	634.25-2.3-	
.. .. catch crops	631.584 :	
.. .. cotton aphid	633.51-2.7-	
.. .. drought injury to turf	635.964-2.112-	
.. .. frost injury of peach	634.25-2.111-	
.. .. fungus disease of sugar beet	633.63-2.4-	
.. .. nitrogen fixation	631.461.51 :	
.. .. soil calcium	631.416.7 :	
in dry farming	631.586 :	
potassium fertilizers and	631.83/	
Crops :	633.1-, 633.11-, 633.13-, 633.16-, 633.17-, 633.18-,	
	633.2.03-, 633.262-, 633.282-, 633.42-, 633.491-, 633.51-,	
	633.61-, 633.63-, 633.71-, 633.822-, 633.888.41-, 634-,	
	634.11-, 634.25-, 634.323-, 634.63-, 634.73-, 634.8-,	
	634.9-, 643.975-, 635-, 635.64-	
(G) (485), (54), (75), (931)		

# FERTILIZERS AND GENERAL AGRONOMY

Nitrogen fixation		631.461.5
by algae	631.466.3 :	
" fungi	631.466.1 :	
mixed cropping and	631.584 :	
Nitrogen fixation (non-symbiotic). Azotobacter		631.461.51
in arid soils	631.445.5 :	
symbiotic nitrogen fixation and	631.461.52 :	
Nitrogen fixation (symbiotic). Nodule bacteria		631.461.52
determination of	631.427.2 :	
in acacia (wattle)	633.879-	
" alder	634.973.662-	
" <i>Cassia tora</i>	633.883.259.42-	
" clover	633.32-	
" peas	635.656-	
" red clover	633.321-	
" soybeans	633.34-	
" vetch	633.35-	
" white clover	633.322-	
nodules on meadow foxtail and	633.285-	
Nitrogen in soil		631.416.1
catch cropping and	631.584 :	
determination of	631.423.3 :	
" " plant-physiological	631.427.3 :	
dry farming and	631.586 :	
effect of disinfectants on	632.953 :	
" " legumes on	633.3-	
" " on bluegrass	633.21-	
green manure and	631.874 :	
in black cotton soil	631.445.72 :	
nitrogen excretion by legumes and	631.461.52 :	
relation of algae to	631.466.3 :	
under pasture	633.2.03-	
Nitrogen requirement of plants		631.811.1
base exchange and	631.414.3 :	
manganese deficiency and	632.19 : 546.711 :	
of apple	634.11-	
" avocado	634.653-	
" cereals	633.1-	
" citrus	634.3-	
" cotton in relation to disease	633.51-2.19-	
" lupins	633.367-	
" mulberry	634.38-	
" onion	635.25-	
" peach	634.25-	
" pear	634.13-	
" radish	635.15-	
" roses	635.937.34-	
" sugar beet	633.63-	
" " cane	633.61-	
" wheat	633.11-	
phosphate requirements of plants and	631.811.2 :	
pre-harvest drop of apple and	634.11-2.19-	
white-fly attack on sugar cane and	633.61-2.7-	



# BIBLIOGRAPHY OF SOIL SCIENCE

Nodule bacteria	See Nitrogen fixation (symbiotic)	
Nomenclature		(083.72)
of forest-humus layers	634.9-1.417	
,, soil horizons	631.472	
,, terraces	631.613	
North Africa		(61)
North America		(7)
North-central United States		(77)
(Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, Wisconsin)		
North-eastern United States		(74)
(Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, Vermont)		
North-west Canada. Prairie Provinces		(712)
Nova Scotia		(716)
Nut grass ( <i>Cyperus rotundus</i> )	632.554.22	
Nutrient requirements of plants	See Plant nutrition	
Nuts	634.5	
(G) (77)		
Nyasaland		(689.7)
Oak	634.972.1	
Oats	633.13	
(G) (76)		
Oceania. Arctic and antarctic regions		(9)
Oilcakes	631.876	
Oil palm	633.855.34	
(G) (595), (68.01)		
Oil plants	633.85	
(G) (44)		
Okra	635.648	
Olive	634.63	
(G) (68.01), (945)		
Onion. Leek	635.25	
(G) (689.1), (931)		
Ontario	(713)	
Orange	634.31	
(G) (46)		
Orchards. Fruit	634	
contour cultivation for	631.613 :	
(G) (54), (569), (78), (79), (941)		
Organic manures	631.86/7	
and clover, affecting soil structure	631.434 : 633.32-	
,, lime on podzol soils	631.445.2 : 631.821.1 :	
dodder seeds in	632.594.2 :	
effect on fungal disease of cotton	633.51-2.4-	
,, ,, humus	631.417.2 :	
,, ,, nitrogen fixation	631.461.51 :	
,, ,, tomato	635.64-	
erosion and	631.459 :	
for horticultural crops	635-	

# FERTILIZERS AND GENERAL AGRONOMY

	631.86/7
for tea	633.72-
organic phosphorus in	631.416.2 : 631.417 :
Organic matter. Organic chemistry of soil	631.417
as index of soil fertility	631.452 :
base-exchange capacity and	631.414.3.03 :
determination of	631.423.4 :
determination of organic phosphorus	631.423.3 : 631.416.2 :
effect of irrigation on	631.67 :
" on roses	635.937.34-
" " tobacco	633.71-
farmyard manure and	631.86 :
in arctic soils	631.445.11 :
" arid soils	631.445.5 :
" forest soils	634.9-
" orchard soils	634-
" relation to clear cutting	634.952.2-
" " " erosion	631.459 :
" " " soil structure, run-off and erosion	631.434 :
in solonchets soils	631.445.53 :
phosphorus in	631.416.2 :
physical properties of soil and	631.43 :
soil micro-organisms and	631.461 :
" moisture and	631.432.2 :
" permeability and	631.432.3 :
(G) (46), (728.1)	
See also Humus	
Organic matter, decomposition of	See Decomposition
Organic soils	631.411.4
alkaline	631.415.3 :
analysis of	631.423.3 :
exhaustion of	631.458 :
flax sickness on	633.52.2-
for roses	635.937.34-
" sugar beet	633.63-
hemp growth on	633.522-
lysimeter for	631.622 :
manganese deficiency in alkaline	632.19 : 546.711 :
meadows on	633.2.03-
soil amendments on	631.822 :
vegetable cultivation on	635-1.51-
(G) (52), (75), (77), (942)	
See also Peat ; Moor soils ; Highmoor soils	
Organo-mineral colloids	631.417.2 : 631.414.2
Ornamental horticulture	635.9
<i>Orthosiphon grandiflorus</i>	633.88
Osmotic pressure	532.712
freezing point of soil (clays) and	631.432.4 :
soil solution and	631.418 :
Oxidation-reduction potential	541.134.5
in soil analysis	631.423 :
of alkaline soils	631.415.3 :
" desert soils	631.445.55 :

# BIBLIOGRAPHY OF SOIL SCIENCE

	541.134.5
of humus	631.417.2 :
„ orchard and tea-garden soils	634.1.4 :
„ soil arsenic	631.416.319 :
„ soils	631.4 :
soil micro-organisms and	631.461 :
„ moisture and	631.432.2 :
Oxidizing power	542.943
organic matter and	631.417 :
Oyster nut ( <i>Telfairea</i> )	634.57
Palestine	(569)
Palm fruits	634.6
Pampas grass	633.288
Panama	(862)
Papaya ( <i>Carica</i> )	634.651
(G) (73)	
Paraguay	(89)
Partridge pea. Pigeon pea ( <i>Chamaecrista fasciculata</i> )	633.37
for erosion control	631.459 :
Paspalum. Dallis grass	633.266
Passion fruit	634.776
Pastures See Grassland	
Peach	634.25
root toxicity of	631.453 : 581.144.2 :
(G) (54), (74), (77)	
Peanut. Ground nut ( <i>Arachis</i> )	634.58
(G) (73), (75), (914)	
Pear	634.13
Peas	635.656
Peat	553.97
determination of moisture in	631.425.22 :
permeability of	631.432.3 :
phosphate content of	631.416.2 :
water in	631.432.4 :
(G) (411), (417), (46), (469), (74), (76), (798)	
See also High-moor soils ; Organic soils	
Peat as fertilizer	631.878
for fruit	634-
„ roses	635.937.34-
„ top-dressing grassland	633.2.03-1.816.23-
„ turf	635.964-
„ vegetables	635-
Pecan	634.521
<i>Pelargonium</i> . Rose geranium	633.812.62
Penetrometer See Instruments for measuring compaction	
Pepper	633.841
(G) (59)	
Peppermint	633.822
Percolation See Permeability	
Permeability. Mobility of soil constituents	631.432.3
as affected by ploughing for cotton	633.51-1.51-
capillarity and	631.414.1 :

# FERTILIZERS AND GENERAL AGRONOMY

	631.432.3
carbon disulphide and	632.951.22 :
drainage and	631.62 :
effect of contour cultivation on	631.613 :
"    "    mulching on	631.544.7 :
exchangeable bases and	631.414.324 :
fertilizer placement and	631.816.3 :
fertilizers and	631.81 :
in forest soils	634.9-
iron and manganese migration	631.416.872 :
lime and	631.821.1 :
nitrogen fertilizers and	631.84 :
of mountain soils	631.4 : 551.432 :
"    podzol soils	631.445.2 :
potassium fertilizers and	631.83 :
soil micro-organisms and	631.461 :
"    nitrogen and	631.416.1 :
"    porosity and	631.433.1 :
"    potassium and	631.416.4 :
"    structure and	631.434 :
Permeability, determination of	631.425.23
Persia	(55)
Persimmon	634.45
Peru	(85)
pH	See Water-holding capacity of soil
pH	See Soil reaction
pH, determination of	631.415.1 : 545.371/2
pH range of crops	631.415.8
of wheat	633.11-
Philippine Islands	(914)
Phosphatic compound fertilizers	631.893.2
Phosphatic fertilizers	631.85
effect on fungal disease of cotton	633.51-2.4-
"    "    nitrification, with potash	631.461.3 : 631.83 :
"    "    nitrogen fixation in soybeans	633.34-1.461.52-
"    "    physical properties of soil	631.43 :
"    "    zinc and copper fixation	631.416.847 :
erosion and	631.459 :
fungal diseases and	632.4 :
magnesium fertilizers and	631.824 :
on calcareous soils	631.411.2 :
"    chernozem	631.445.4 :
"    peat soil	631.411.4 :
"    rendzina	631.445.9 :
Crops : 633.11-, 633.15-, 633.16-, 633.2.03-, 633.31-, 633.327-,	
633.34-, 633.491-, 633.51-, 633.71-, 633.85-, 634.3-,	
634.31-, 635-, 635.41-, 635.64-	
(G) (411), (676.2,9)	
Phosphorite	See Rock phosphate
Phosphorus in soil	631.416.2
determination of	631.423.3 :
"    "    by micro-organisms	631.427.4 :
"    "    plant-physiological	631.427.3 :
"    "    potash and	631.423.3 : 631.416.4 :

# BIBLIOGRAPHY OF SOIL SCIENCE

		631.416.2
effect of liming on	631.821.1 :	
farmyard manure and	631.86 :	
in alkali soils	631.415.3 :	
.. arid soils	631.445.5 :	
.. rice fields	633.18-	
.. tropical soils	631.445.7 :	
phosphate fertilizers and	631.85 :	
rapid chemical tests for	631.422 :	
under pasture	633.2.03-	
wheat yields and	633.114	
(G) (729), (881), (943)		
Phosphorus requirements of plants		631.811.2
deficiency in citrus	634.3-2.19-	
.. .. pear	634.13-2.19-	
.. .. sugar beet	633.63-2.19-	
effect of liming on	631.821.1 :	
farmyard manure and	631.86 :	
in forests	634.9-	
.. organic soils	631.411.4 :	
lime requirements of plants and	631.811.4 :	
of fruit trees	634-	
.. kok-saghyz	633.913.32-	
.. peach	634.25-	
.. pecan	634.521-	
.. rice	633.18-	
.. sugar cane	633.61-	
.. wheat	633.11-	
organic phosphorus and	631.416.2 :	631.417 :
potassium fertilizers and	631.83 :	
.. requirements of plants and	631.811.3 :	
rock phosphate and	631.851 :	
sewage and	631.879.2 :	
Photography		77.03
of soil colour	631.4.061.6 :	
.. .. profiles	631.472 :	
See also Aerial photography		
Photosynthesis		541.144.7
in leguminous plants	631.461.52 :	
soil moisture and	631.432.2 :	
Physical analysis		631.425
Physical properties of soil		631.43
effect of cultivation on	631.51 :	
.. .. mulching on	631.544.7 :	
.. .. phosphate fertilizers on	631.85 :	
.. .. rice cultivation on	633.18-	
.. on cacao	633.74-	
.. .. sugar-beet rot	633.63-2.4-	
exchangeable bases and	631.414.324 :	
in relation to erosion	631.459 :	
.. .. .. land classification	631.47 :	
of arid soils	631.445.5 :	
.. forest soils	634.9-	
.. tropical soils	631.445.7 :	

# FERTILIZERS AND GENERAL AGRONOMY

		631.43
soil micro-organisms and	631.461 :	
„ permeability and	631.432.3 :	
„ profile and	631.472 :	
„ texture and	631.435 :	
(G) (984)		
Physico-chemical properties of soil		631.412
effect of peat on	631.878 :	
of tropical soils	631.445.7 :	
stability of aggregates and	631.434 :	
Phl nut		634.57
Phneapple		634.774
(G) (943)		
Placement of fertilizers	See Fertilizers : methods of application	
and distribution		
Plant diseases		632
of flax as affected by bacteria	633.52-	
„ rice	633.18-	
„ strawberry	634.75-	
„ sugar beet	633.63-	
„ tobacco	633.71-	
„ vegetables	635-	
(G) (944)634.3-, (969)633.61-		
Plant growth		631.547.2
"effect factors" of	631.427.3 :	
effect of soil micro-organisms on	631.461 :	
„ „ „ colloids on	631.414.2 :	
„ „ temperature on	631.436 :	
ground water and	631.432 :	
of sugar cane	633.61-	
„ „ „ as influenced by		
manuring	633.61-1.81-	
soil air and	631.433 :	
„ porosity and	631.433.1 :	
See also Germination ; Plant nutrition		
Plant-growth substances		577.15.04
determination of	631.423.4 :	
effect on sugar beet	633.63 :	
„ „ tobacco	633.71 :	
in manure	631.86 :	
„ plant nutrition	631.811.9 :	
potassium requirements of plants and	631.811.3 :	
relation to nitrogen fixation	631.461.51 :	
soil micro-organisms and	631.461 :	
weed destruction by	632.954 :	
Plant nutrition		631.811
contact exchange in	631.414.3 :	
exchangeable bases and	631.414.324 :	
fungal disease of wheat and	633.11-2.4-	
„ „ „ sugar beet and	633.63-2.4-	
of conifers, soil composition and	634.975-1.416-	
organic manures and	631.86/7 :	
„ matter and	631.417 :	
soil reaction and	631.415.1 :	

## BIBLIOGRAPHY OF SOIL SCIENCE

631.811

- technique for studies on 631.42 :  
*Crops* : 633.11-, 633.13-, 633.16-, 633.18-, 633.2.03-, 633.31-,  
 633.41-, 633.42-, 633.491-, 633.51-, 633.52-, 633.524.3-,  
 633.524.635.3-, 633.61-, 633.63-, 633.71-, 633.72-,  
 633.73-, 633.78-, 633.842-, 633.853.55-, 633.861.2-,  
 633.88-, 633.887.1-, 633.888.421-, 633.913.31-,  
 633.913.32-, 633.913.36-, 634.11-, 634.3-, 634.521-,  
 634.58-, 634.73-, 634.75-, 634.774-, 634.8-, 634.9-,  
 634.972-, 635.13-, 635.15-, 635.34-, 635.35-, 635.41-,  
 635.52-, 635.64-, 635.935.79-, 635.937.138-  
 (G) (51), (698.2), (76), (914)633.15-  
 Plant-physiological methods of analysis *See* Determination  
 of plant nutrients by plants  
 Plant residues (as fertilizer) 631.871  
 Plasticity of clay 631.414.2 : 539.214  
 Ploughing 631.512  
*See also* Cultivation and tillage  
 Ploughs 631.312  
 Plum. Prune 634.22  
*Poa* 633.21  
 Podzolic soils 631.445.2.3  
 Podzols 631.445.2  
 effect of lupins on 633.367-  
 organic matter of 631.417 :  
 phosphate in 631.416.2 :  
 rock phosphate for 631.851 :  
 sub-tropical 631.445.7 :  
 Poland (438)  
 Pome fruits 634.1  
 Ponds *See* Lakes  
 Poppy 633.75  
 (G) (436), (46)  
 Porosity. Aeration 631.433.1  
 effect of freezing soil on 631.436.6 :  
 " on apple 634.11-  
 " " black locust 633.375-  
 " " cacao 633.74-  
 " " roses 635.937.34-  
 infiltration and 631.432.3 :  
 of hardpan 631.414.2 :  
 " rice fields 633.18-  
 organic-matter decomposition and 631.461.1.3 :  
*See also* Permeability, etc.  
 Porosity, determination of 631.425.31  
 Portugal (469)  
 Potassium chloride 631.832  
 effect on citrus 634.3-2.19-  
 " conifers 634.975-  
 " nitrification 631.461.3 :  
 Potassium fertilizers 631.83  
 effect of lime and, on soil phosphate 631.416.2 : 631.821.1 :  
 " on frost damage to conifers 634.975-2.111-  
 " " fungal disease of cotton 633.51-2.4-

# FERTILIZERS AND GENERAL AGRONOMY

	♦ 631.83
effect on fungal disease of sugar cane	633.61-2.4-
.. .. lodging	632.183 :
.. .. nitrification	631.461.3 :
.. .. soil phosphate	631.416.2 :
.. .. potash	631.416.4 :
magnesium fertilizers and	631.824 :
rock phosphate and	631.851 :
seaweed as	631.873 :
<i>Crops</i> :	633.11-, 633.2.03-, 633.34-, 633.366-, 633.4-, 633.42-,
	633.491-, 633.492-, 633.51-, 633.52-, 633.61-, 633.63-,
	633.71-, 633.822-, 633.861.2-, 634.31-, 634.975-,
	634.975-2.111-, 635-, 635.64-, 635.65
(G) (43)633.63-, (612), (729)633.61-, (931)	
Potassium fertilizers, miscellaneous	631.839
Potassium in soil	631.416.4
determination of	631.423.3 :
.. .. exchangeable	631.423.7 :
effect of clay-humus complex on	631.417.2 : 631.414.2 :
.. .. liming on	631.821.1 :
in apple orchards	634.11-
.. tropical soils	631.445.7 :
rapid chemical tests for	631.422 :
(G) (43), (45), (75), (76), (931)	
Potassium requirement of plants. Potash in plant nutrition	631.811.3
deficiency in apple	634.11-2.19-
.. .. cabbage	635.34-2.19-
.. .. conifers	634.975-2.19-
.. .. fruit trees	634-2.19-
.. .. grapes	634.8-2.19-
.. .. Napier grass	633.283-2.19-
.. .. potatoes	633.491-2.19-
.. .. tea	633.72-2.19-
.. .. tomato	635.64-2.19-
.. .. tung	633.854.56-2.19-
in relation to nitrogen fixation by	
.. soybeans	631.461.52 :
nitrogen requirements of plants and	631.811.1 :
of citrus	634.3-
.. fodder mallow	633.29-
.. fruit trees	634-
.. grapes	634.8-
.. peach	634.25-
.. prune (and apple)	634.22-
.. rice	633.18-
.. sugar cane	633.61-
.. tea	633.72-
.. tobacco	633.71-
.. tomato	635.64-
.. white clover	633.322-
potassium deficiency	632.19 :
sodium requirements of plants and	631.811.5 :
soil potash and	631.416.4 :



# BIBLIOGRAPHY OF SOIL SCIENCE

Potato	633.491
(G) (417), (43), (689.1), (698.2), (76), (81), (92), (94), (945)	
Pot experiments	See Experimental methods and technique
Poultry manure	631.86 : 636.5
Precipitated phosphate	631.856
Prickly pear	632.585
Primula, Primrose	635.939.183
Prince Edward Island	(717)
Propagation of plants	631.53
plant nutrition and	631.811 :
Proteins	547.96
absorption of	631.414.3 :
Protozoa	631.467.1
in relation to nitrogen fixation	631.461.51 :
preyed upon by fungi	631.466.1 :
(G) (51)	
Proximate organic analysis	631.422.4
Puddling	See Water-holding capacity
Pyknometer	631.425.3.005
Pyrethrum	633.887.791
(G) (54), (676.2;9), (85)	
Quack grass ( <i>Agropyron repens</i> )	632.554.21
Qualitative soil analysis	See Rapid chemical methods of analysis
Quantitative soil analysis	631.423
See also under Analysis	
Quebec	(714)
Queensland	(943)
Radioactive elements in soil	631.416.879
Radioactivity	539.16
and rare earths, effects on kok-saghyz	633.913.32 : 546.65 :
effect on tomato	635.64 :
in plant nutrition	631.811.9 :
„ soils	631.4 :
Radish	635.15
Ragwort ( <i>Senecio jacobea</i> L.)	632.599.8
Rainfall	551.577
drainage and	631.62 :
effect on clay colloids	631.414.2 :
„ „ crop yields	631.557 :
„ „ humus	631.417.2 :
„ „ organic matter	631.417 :
„ „ soil structure	631.434 :
„ „ tropical soils	631.445.7 :
erosion and	631.459 :
irrigation and	631.67 :
nitrogen gained from	631.416.1 :
relation to percolation	631.432.3 :
soil nitrate and	631.416.13 :
Ramie	633.525.1

# FERTILIZERS AND GENERAL AGRONOMY

Rape	633.42
Raphia	633.584.9
Rapid chemical methods of analysis	631.422
Rare earths	546.65
effect on kok-saghyz	633.913.32 :
" " peas	635.656 :
Rare earths in soil	631.416.865
Raspberry	634.711
(G) (74)	
Reaction of soil	See Soil reaction
Reclamation of alkali soils	631.415.36
and quality of cane sugar	633.61-
(G) (54), (62), (945)	633.2.03-
Reclamation of deserts	631.617
(G) (62)	
Reclamation of waste land	631.615
ploughs for	631.312 :
(G) (438), (931), (946)	
See also Dune and dump reclamation	
Red clover	633.321
Red earth	See Terra rossa
Red soils	See Tropical soils
Regur	631.445.72
ammonium sulphate for	631.841.1 :
permeability of	631.432.3 :
See also Tropical soils	
Relief. Slope. Topography	551.41
erosion losses and	631.459 :
hardpan in relation to	631.414.2 :
in relation to orchard health	634-1.416 :
soil formation and	631.48 :
(G) (494)	631.416 :
Rendzina	See Aclimatic soil types
Residual value	631.815
of potassium fertilizers	631.83 :
Rhenania.	See Calcined phosphates
Rhizosphere	631.461 : 581.144.2
Rhodes grass ( <i>Chloris gayana</i> )	633.287
Rice	633.18
straw as manure	631.871 :
(G) (439), (54), (548.7), (595), (664), (669), (678), (678.1), (76), (81), (899), (914), (961)	
Rice grass	633.287
Roads. Foundation soils	625.7/8
erosion and	631.459 :
physico-chemical properties of soils	
and	631.412 :
soil density and	631.431 :
Robinia	633.375
Rocket ( <i>Eruca sativa</i> )	635.44
Rock phosphate. Phosphorite	631.851
compared with iron and aluminium phosphates	631.859 :

## BIBLIOGRAPHY OF SOIL SCIENCE

		631.851
effect on forest trees	634.9-	
for flax	633.52-	
„ <i>Ricinus</i>	633.853.55-	
superphosphate and	631.855 :	
(vivianite) for potatoes	633.491-	
(G) (417), (42), (47), (474.2), (485), (497.1), (51), (68.01), (73),		
(75), (76), (79), (92), (95)		
Rolling		631.515
control of insect pests by	632.7 :	
Root crops		633.4
Roots		581.144.2
effect of clay on	631.414.2 :	
„ on soil reaction	631.415.1 :	
electro-chemical properties of soils and	631.413 :	
ground water and	631.432 :	
in mixed crops	631.584 :	
„ relation to erosion	631.459 :	
lime requirements of plants and	631.811.4 :	
nitrogen fertilizers and	631.84 :	
of apple as affected by soil	634.11-1.4 :	
„ avocado	634.653 :	
„ birch (and pine)	634.972.6 :	
„ carrot as affected by manuring	635.13-1.81 :	
„ cacao as affected by soil conditions	633.74-1.43 :	
„ coffee, distribution of	633.73 :	
„ conifers as affected by soils	634.975-1.4 :	
„ dandelion	632.599.8 :	
„ grass in relation to soil structure	633.2-1.434 :	
„ grassland plants	633.2.03 :	
„ „ „ as affected by		
fertilizer placement	633.2.03-1.816.3 :	
„ grassland plants as affected by		
harrowing	633.2.03-1.514 :	
„ „ „ as affected by		
management	633.2.03-1.58 :	
„ „ „ as affected by		
manuring	633.2.03-1.81 :	
„ hops as affected by soil	633.79-1.4 :	
„ <i>Leucaena</i>	634.461 :	
„ lucerne	633.31 :	
„ meadow grass as affected by soil	633.21-1.4 :	
„ nuts as affected by soil moisture	634.5-1.432.2 :	
„ potatoes as affected by manuring	633.491-1.81 :	
„ rice	633.18 :	
„ rye grass	633.263 :	
„ solonets vegetation	631.445.53 :	
„ soybeans	633.34 :	
„ tobacco as affected by soils	633.71-1.4 :	
„ trees as influencing soil morphology	634.9-1.472 :	
„ tung	633.854.56 :	
„ turf as affected by manuring	635.964-1.81 :	
phosphate fertilizers and	631.85 :	
physical properties of soil and	631.43 :	

# FERTILIZERS AND GENERAL AGRONOMY

		581.144.2
reclamation of alkali soils and	631.415.36 :	
soil air and	631.433 :	
.. micro-organisms and (rhizosphere)	631.461 :	
.. moisture and	631.432.2 :	
.. porosity and	631.433.1 :	
.. profile and	631.472 :	
.. texture and	631.435 :	
technique for study of	631.42 :	
toxicity and	631.453 :	
water absorption and	631.811.91 :	
(G) (941)634-1.4 :		
Rose		635.937.34
Rotations		631.582
effect on nematodes	632.2 :	
.. .. sorghum	633.17-	
.. .. wheat	633.11-	
for control of sugar-beet nematodes	633.63-2.2-	
.. .. .. tobacco diseases	633.71-2-	
.. cotton	633.51-	
.. flax	633.52-	
.. oil plants	633.85-	
.. podzol soils	631.445.2 :	
.. rice	633.18-	
.. sugar beet	633.63-	
fungal disease of cotton and	633.51-2.4-	
.. .. .. potatoes and	633.491.2.4-	
.. .. .. wheat and	633.11-2.4-	
grass and	633.2.03-	
insect pests and	632.7 :	
kudzu and	633.379-	
lucerne and	633.31-	
noxious effect on cotton	633.51-2.19-	
potatoes and	633.491-	
wireworm infestation of potatoes and	633.491-2.7-	
(G) (68.01), (77), (78), (8)633.2/3-		
Rubber ( <i>Hevea</i> )		633.912
smoke-house ash as fertilizer	631.831 :	
(G) (54), (548.7), (59), (81), (95)		
Rubber plants		633.91
(G) (676.1)		
Rubber plants other than <i>Hevea</i>		633.913
(G) (47), (73), (79), (931)		
Rubidium in plant nutrition	631.811.9 : 546.35	
Rubidium in soils <i>See under</i> Lithium, etc., in soils		
Rumania		(498)
Run-off		551.48
as affected by shelterbelts	634.953.6 :	
effects of contour cultivation on	631.613 :	
.. .. cover crops on	631.584 :	
.. .. grassland management on	633.2.03-1.58 :	
in relation to physical properties of		
soil	631.416 :	
.. .. .. soil composition	631.416 :	

## BIBLIOGRAPHY OF SOIL SCIENCE

		551.48
in relation to soil erosion	631.459 :	
.. .. permeability	631.432.3 :	
Russia		(47)
Rye		633.14
Rye grass ( <i>Lolium</i> )		633.263
Safflower		633.854.797
Saffron		633.861.2
Sagebush ( <i>Artemisia</i> )		632.599.8
Saline soils (solonchak-solonets)		631.445.52.3
See also Alkaline soils		
Salt See Sodium chloride		
Salts in soil, determination of		631.423.5
Salt tolerance of plants		581.192.6
in alkali soils	631.415.3 :	
of cotton	633.51 :	
.. flax	633.52 :	
.. grape	634.8 :	
.. lucerne	633.31 :	
.. sugar cane	633.61 :	
.. tomato	635.64 :	
soil moisture and	631.432.2 :	
Salt water		553.72
effect on colloidal properties of soil	631.414 :	
.. .. permeability of soil	631.432.3 :	
potash production and	631.83 :	
Sand soils		631.435.1
alder for	634.973.662 :	
green manure and	631.874 :	
potash in	631.416.4 :	
structure of	631.434 :	
(G) (42)		
<i>Sanscevia</i>		633.526.42
Saskatchewan		(712.4)
Saturation capacity See Base-exchange capacity		
Sawdust as fertilizer		631.876
erosion and	631.459 :	
<i>Scorzonera</i>		633.913.36
Scotland		(411)
Seasonal variations		525.5
in composition of forest soil	634.9-1.416 :	
.. .. soil	631.416 :	
.. microbial activity	631.461 :	
.. nitrate formation	631.461.3 :	
.. soil air	631.433 :	
.. .. reaction	631.415.1 :	
.. .. temperature	631.436 :	
Seaweed as fertilizer		631.873
Sedimentation volume See Density		
Seeds. Sowing		631.531
of coffee	633.73-	
.. cotton	633.51-	

# FERTILIZERS AND GENERAL AGRONOMY

		631.531
of grasses as affecting soil structure	633.2.03-1.434-	
.. maize	633.15-	
.. potatoes	633.491-	
.. rice	633.18-	
.. soybeans	633.34-	
.. sugar beet	633.63-	
.. tobacco	633.71-	
.. wheat	633.11-	
See also Germination		
Selenium		546.23
absorption of	631.414.3 :	
effect on cereals	633.1 :	
insect pests and	632.7 :	
sulphur in plants and	631.811.7 :	
Selenium in soil		631.416.323
plant indicators of	631.415.7 :	
Serozems See Arid soils		
Serpentine as fertilizer		631.824
Serpentine superphosphate	See Magnesium phosphate	
Sesamum. Gingelly		633.853.74
Sewage		631.879.2
effect on grassland	633.2.03-	
nitrogen fixation in	631.461.51 :	
(C) (54)		
See also Nightsoil		
Seychelles		(696)
Shade trees See Windbreaks		
Shallot		635.263
Sheep manure		631.86 : 636.3
Shelter belts See Windbreaks		
Shifting cultivation		631.589
Shrubs		635.976
Siam		(593)
Siberia		(57)
Sicily		(458)
Sierra Leone		(664)
Silica-alumina ratio See Weathering		
Silica and silicates		546.284
applied to tropical soils	631.445.7 :	
as fertilizer	631.828 :	
calcined phosphates and	631.858 :	
hardpan	631.414.2 :	
in saline soils	631.415.3 :	
magnesium silicate as fertilizer	631.824 :	
phosphate fertilizers and	631.85 :	
sulphur in plants and	631.811.7 :	
Silica in soil		631.416.328.4
determination of	631.423.3 :	
Silting. Sedimentation		551.3.051
erosion and	631.459 :	
from irrigation water	631.671 :	
in relation to land use	631.47 :	

# BIBLIOGRAPHY OF SOIL SCIENCE

Silviculture	634.95
(G) (411)	
"Single-value" properties	See Physical properties ; Water-
holding capacity	
Skeleton weed ( <i>Chondrilla juncea</i> )	632.599.8
Slaughter-house residues	631.876.6
Small fruits	634.4
Smoke injury	632.184
to mango	634.441-
Snow	551.578.4
effect on erosion	631.459 :
.. .. soil temperature	631.436 :
Sodium acetate	547.292
effect on plant growth	631.547.2 :
Sodium chlorate (as weed killer)	632.954.8
for bindweed control	632.594.2 :
.. <i>Lantana</i> control	632.594.91 :
Sodium chloride	546.331.31
as fertilizer	631.828 :
effect on composition of soil	631.416 :
.. .. onion	635.25 :
for sugar beets	633.63 :
Sodium in soil	631.416.5
determination of	631.423.3 :
.. .. exchangeable	631.423.7 :
Sodium nitrate	631.842.3
calcium nitrate and	631.842.6 :
green manure and	631.874 :
See also Nitrate fertilizers	
Sodium requirement of plants. Sodium in plant nutrition	631.811.5
of cotton	633.51-
.. sugar beet	633.63-
Soil air	631.433
effect on soil reaction	631.415.1 :
in forest soils	634.9-
Soil air, analysis of	631.425.3
Soil amendments	631.822
Soil bacteria, miscellaneous	631.461.74
See also Micro-organisms	
Soil classification	See Soil types
Soil colloids	See Clay colloids
Soil conservation	631.459 : 631.61
(G) (47), (54), (548.7), (564.3), (669), (678), (68.01), (689.1),	
(717), (72), (729), (73), (74), (75), (76), (77), (79), (81), (83),	
(92), (944)	
See also Erosion ; Land reclamation	
Soil exhaustion	631.458
flax and	633.52-
insects and	632.7 :
magnesium depletion and	631.416.846 :
(G) (669), (714)634.9-, (899)633.2.03-	
Soil fertility	See Fertility of soils

# FERTILIZERS AND GENERAL AGRONOMY

Soil formation		631.48
by earthworms	632.651.6 :	
carbon-nitrogen ratio during	631.417.4 :	
of alkali soils	631.415.3 :	
„ arid soils	631.445.5 :	
„ brown earths	631.445.3 :	
„ chernozems	631.445.4 :	
„ chestnut soils	631.445.51 :	
„ laterite soils	631.445.73 :	
„ podzols	631.445.2 :	
„ saline soils	631.445.52/3 :	
„ solonets soils	631.445.53 :	
„ terra rossa	631.445.6 :	
„ tropical soils	631.445.7 :	
under teak	634.973.949-	
(G) (471), (593), (76), (77), (984)		
Soilless cultivation	See Water culture	
Soil microbiology		631.46
erosion and	631.459 :	
of rice fields	633.18-	
„ tobacco fields	633.71-	
synthetic soil as culture medium	631.42 :	
Soil moisture		631.432.2
ammoniacal fertilizers and	631.841 :	
availability of manganese and	631.416.871.1 :	
„ „ nutrients and	631.416 :	
dispersion and	631.414.05 :	
effect of contour cultivation on	631.613 :	
„ „ irrigation on	631.67 :	
„ „ lime on	631.821.1 :	
„ „ windbreaks on	634.953.6-	
„ on avocado and lemon	634.653-	
„ „ dates	634.62-2.19-	
„ „ fungal invasion of avocado	634.653-2.4-	
„ „ growth of pear	634.13-	
„ „ Jerusalem artichoke	638.494-	
„ „ kenaf	633.524.3-	
„ „ nitrification	631.461.3 :	
„ „ nut production	634.5-	
„ „ peas	635.656-	
„ „ soil structure	631.434 :	
„ „ sugar beet	633.63-	
„ „ „ cane	633.61-	
„ „ sunflower	633.854.78-	
„ „ thermal conductivity	631.436 :	
„ „ wheat	633.11-	
„ „ wilt of chilli	633.842-2.4-	
farmyard manure and	631.86 :	
green manure and	631.874 :	
in chernozems	631.445.4 :	
„ chestnut-coloured soils	631.445.51 :	
„ desert soils	631.445.55 :	
„ forest soils	634.9-	



## BIBLIOGRAPHY OF SOIL SCIENCE

	631.432.2
in orchards	634.7
.. podzol soils	631.445.2 :
.. relation to cacao	633.74-
lucerne cultivation and	633.31-
nut grass and	632.554.22 :
plant nutrition and	631.811 :
soil micro-organisms and	631.461 :
.. reaction and	631.415.1 :
.. respiration and	631.433 :
.. volume changes and	631.431 :
sowing depth and	631.531 :
under citrus	634.3-
<i>See also</i> Drying of soils	
Soil moisture, determination of	631.425.22
hygroscopicity and	631.432.4 :
Soil profile	631.472
as influenced by trees	634.9-
deep cultivation and	631.51 :
phosphorus in	631.416.2 :
soil microflora and	631.461 :
variation in composition of soil with depth	631.416 :
Soil protection <i>See</i> Mulching	
Soil reaction	631.415.1
absorption and	631.414.3 :
alkali soils and	631.415.3 :
aluminium and	631.416.862.1 :
ants and	632.7 :
availability of boron and	631.416.327 :
.. .. copper and	631.416.856 :
.. .. nutrients and	631.416 :
base-exchange capacity and	631.414.3.03 :
effect of irrigation on	631.671 :
.. .. nitrogen on sugar cane and	633.61-1.84-
.. .. on calcium-magnesium ratio	631.416.7.8 :
.. .. carbon-nitrogen ratio	631.417.4 :
.. .. free nitrogen fixation	631.461.51 :
.. .. fungal diseases	632.7 :
.. .. nitrification	631.461.3 :
.. .. nitrogen nutrition of wheat	633.11-1.811.1-
.. .. organic-matter decomposition	631.461.1.3 :
.. .. potato scab	633.494-2.4-
.. .. rot of sweet potatoes	633.492-2.4-
.. .. symbiotic nitrogen fixation	631.461.52 :
.. .. tomato sickness	635.64-2.19-
flocculation and	631.414.04 :
lime and	631.821.1 :
.. requirements of plants and	631.811.4 :
manganese and	631.416.871.1 :
nitrogen requirements of plants and	631.811.1 :
phosphate absorption and	631.416.2 :
.. fertilizers and	631.85 :

# FERTILIZERS AND GENERAL AGRONOMY

plant nutrition and	631.811 :	631.415.1
sodium chlorate and	632.954.8 :	
soil bacteria and	631.461 :	
„ sterilization and	631.462 :	
<i>Crops</i> :	633.3-, 633.34-, 633.367-, 633.51-, 633.52-, 633.72-, 634-, 634.13-, 634.3-, 634.653-, 634.73-, 634.774-, 634.972.4-, 634.975-, 635.61-, 635.939.31-, 635.98-	
(G) (519), (729), (74), (81)		
Soils		631.4
effect on chlorosis of cotton	633.51-2.19-	
„ „ drought injury to citrus	634.3-2.112-	
„ „ fungal diseases	632.4 :	
„ „ „ disease of wheat	633.11-2.4-	
„ „ insect pests	632.7 :	
in relation to Panama disease of		
bananas	634.771-2.4-	
„ „ „ tree species	634.97-	
mole-draining and	631.62 : 626.862.6 :	
<i>Crops</i> :	633.1-, 633.18-, 633.2.03-, 633.21-, 633.288-, 633.31-, 633.322-, 633.325-, 633.34-, 633.51-, 633.63-, 633.71-, 633.74-, 633.79-, 633.854.56-, 633.913.31-, 633.913.32-, 634-, 634.11-, 634.3-, 634.653-, 634.73-, 634.9-, 634.973.949-, 634.975-, 635.25-, 635.64-, 635.938.422-, 635.946.69-, 635.98-	
(G) (411), (411)634.9-, (411)634.95-, (417), (42), (43), (43)633.2.03-, (43)634.8-, (437), (44), (45), (46), (46)633.71-, (46)634.31-, (469), (47), (47)633.854.56-, (471)634.9-, (485), (51), (52), (52)634.3-, (54), (548.7), (56), (569), (57), (573), (584), (593), (595)633.377-, (612), (624)633.73-, (65), (669), (671.8), (676.1), (676.2/9)633.73-, (68.01), (68.01)633.71-, (71), (71)633.71-, (712), (713), (713)635-, (72), (728.1), (728.2), (729), (729)633.61-, (729)633.73-, (729)634.61-, (729)634.9-, (73)634.11-, (74), (74)634.11-, (75), (76), (76)634.9-, (77), (8), (81), (81)633.18-, (81)633.73-, (82), (85), (87), (881), (889)633.18-, (92), (931), (941)634-, (942), (943), (943)634.774-, (945)633.71-, (946), (95), (961)633.61-, (961)634.3-, (969), (984)		
Soil sampler		631.42.005
Soil sickness <i>See</i> Soil exhaustion		
Soil solution		631.418
effect of fertilizers on	631.81 :	
effects on soil structure	631.434 :	
Soil sterilization		631.462
cyanamide and	631.841.5 :	
fungal diseases and	632.4 :	
„ „ of cereals and	633.1-2.4-	
of tobacco seed-beds	633.71-1.531-	
Soil structure		631.434
clay colloids and	631.414.2 :	
effect of electric current on	631.437.31 :	
„ „ frost on	631.436.6 :	
„ „ fungi on	631.466.1 :	
„ „ grass	633.2-	

## BIBLIOGRAPHY OF SOIL SCIENCE

		631.434
effect of grass under maize on	633.15 : 633.2-	
.. .. irrigation on	631.67 :	
.. .. sugar beet	633.63-	
.. .. sulphite liquor on	631.877 :	
hydration and	631.432.4 :	
of arctic soils	631.445.11 :	
.. clay (adobe) soils	631.435.4 :	
under pasture	633.2.03-	
use of burnt soil for improving	631.436.5 :	
wind erosion and	631.459 : 551.55 :	
Soil surveys		631.473
(G) (411), (469), (485), (518), (54), (712), (714), (76), (81), (931),		
(941), (942), (944), (945)		
Soil temperature		631.436
effect on base-exchange capacity	631.414.3.03 :	
.. .. bent grass	633.23-	
.. .. blueberry	634.73-	
.. .. growth and nitrogen intake		
of apple trees	634.11-1.811.1-	
.. .. nitrification	631.461.3 :	
.. .. orange	634.31-	
.. .. permeability	631.432.3 :	
.. .. symbiotic nitrogen fixation	631.461.52 :	
fungal diseases and	632.4 :	
heat canker of flax and	633.52-2.19-	
in forests	634.9-	
.. rice cultivation	633.18-	
of organic and clay soils	631.4 :	
phosphate absorption as affected by	631.416.2 : 631.414.3 :	
potash availability and	631.416.4 :	
soil colour and	631.4.061.6 :	
.. micro-organisms and	631.461 :	
.. moisture and	631.432.2 :	
water absorption by plants and	631.811.91 :	
(G) (495), (52)		
Soil temperature, measurement of		631.425.6
Soil types. Soil classification		631.44
concretions in	631.414.2 :	
crop yields in relation to	631.557 :	
erodibility and	631.459 :	
for conifers	634.975-	
forest-tree species and	634.97-	
land use in relation to	631.47 :	
of forest soils	634.9-	
.. organic soils	631.411.4 :	
.. tropical soils	631.445.7 :	
.. vineyard soils	634.8-	
phosphorus in relation to	631.416.2 :	
potassium requirements of plants and	631.811.3 :	
soil micro-organisms and	631.461 :	
.. moisture in relation to	631.432.4 :	
terracing and	631.613 :	
(G) (485) 634.9-, (51), (52), (57), (77)		

# FERTILIZERS AND GENERAL AGRONOMY

Solod	631.445.54
Solonchak	631.445.52
Solonets	631.445.53
for sugar beet	633.63-
(G) (437)	
Somaliland	(677)
Sorghum. Millet	633.17
(G) (43)631.584: , (78)	
South America	(8)
South Australia	(942)
South-eastern United States	(75)
(Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, West Virginia)	
Southern Rhodesia	(689.1)
Southern United States	(76)
(Alabama, Kentucky, Louisiana, Mississippi, Oklahoma, Tennessee, Texas)	
Soybeans	633.34
effect on wheat	633.11 :
(G) (42), (68.01), (689.1), (77), (78), (969)	
Spain	(46)
Spanish Guinea	(671.8)
<i>Spartina</i> (rice grass)	633.287
Specific gravity <i>See</i> Density	
Spectrographic analysis	544.6
determination of exchangeable bases by	631.423.7 :
" " potassium by	631.423.3 : 631.416.4 :
of fertilizers	631.81 :
" soils and plant ash	631.423 :
Spinach	635.41
Spinach beet	635.42
Spitsbergen	(984)
Sprinkling irrigation (equipment)	631.347.24
effect on soil structure	631.434 :
for plant protection	632 :
Squash. Gourd. Loofah	635.62
Squirting cucumber	633.883.259.56
Starter solutions <i>See</i> Fertilizers, time of application of	
Statistical methods <i>See</i> Field experiments	
<i>Stellaria media</i>	632.566.9
Steroids	547.92
decomposition in soil	631.461.74 :
Sterols in soil	631.417.792
Sticky point <i>See</i> Water-holding capacity of soil	
Stone fruits	634.2
Stones	631.435.5
in relation to erosion	631.459 :
Stramonium ( <i>Datura</i> )	633.888.421
Straw	636.086.25
as manure	631.871 :
use in glasshouse soils	635.98-1.4 :

# BIBLIOGRAPHY OF SOIL SCIENCE

Strawberry	634.75
(G) (74), (75), (76), (77), (79)	
Strawberry clover	633.325
Strip cropping	631.582 : 631.459
grasshopper control and	632.7 :
Strontium in soil <i>See</i> Barium in soil	
Stubble mulching	631.312.5
compared with ploughing	631.512 :
for erosion control	631.459 :
for wind-erosion control	631.459 : 551.55 :
<i>See also</i> Subsurface tillage implements	
Subsurface tillage implements	631.312.54
Subterranean clover	633.326
Subterranean irrigation	631.347.22
Sudan	(624)
Sudan grass ( <i>Sorghum halepensis</i> )	633.282
Sugar beet	633.63
effect on soil structure	631.434 :
machinery for	631.3 :
residues as fertilizer	631.876.9 :
(G) (43), (713), (77), (78), (79)	
Sugar cane	633.61
effect of press mud on nitrogen	
fixation	631.461.5 :
foliar diagnosis and	631.427.3 :
residues as fertilizer	631.876.9 :
trash as manure	631.871 :
(G) (54), (584), (68.01), (698.2), (729), (75), (87), (881), (961), (969)	
Sulphur	546.22
deficiency in citrus	634.3.2.19 :
" " tea	633.72-2.19 :
effect on chemical properties of soil	631.416 :
" " nodulation of peas	635.656-1.461.52 :
" " potato scab	633.491-2.4 :
" " roses in alkaline soil	635.937.34-1.415.3 :
" " soil reaction	631.415.1 :
for sugar beet, interaction with	
nitrogen	633.63-1.811.1 :
heart rot of sugar beet and	633.63-2.19 :
in blast-furnace slag	631.821 : 669.16 :
reclamation of alkali soils with	631.415.36 :
Sulphur bacteria	631.461.71
soil corrosion and	631.4 : 620.19 :
Sulphuric acid	546.228
as cause of soil toxicity	631.453 :
reclamation of alkali soils with	631.415.36 :
Sulphuric acid as weed killer	632.954.1
in onion and leek crops	635.25-
Sulphur in soil	631.416.322
Sulphur requirement of plants. Sulphur in plant nutrition	631.811.7
deficiency	632.19 :
" in cotton	633.51-2.19-

# FERTILIZERS AND GENERAL AGRONOMY

		631.811.7
of conifers	634.975-	
„ lucerne	633.31-	
„ sunflower	633.854.78-	
Sunflower ( <i>Helianthus</i> )		633.854.78
Superphosphate		631.855
basic slag and	631.853 :	
for wheat	633.11-	
„ subterranean clover	633.326-	
precipitated phosphate and	631.856 :	
rock phosphate and	631.851 :	
Surface		539.211
of colloids	631.414.2 :	
„ soil in relation to permeability	631.432.3 :	
Survey <i>See</i> Mapping ; Soil surveys		
Swede. Mangold		633.426
Sweden		(485)
Sweet clover ( <i>Melilotus</i> )		633.366
for green manure	631.874 :	
Sweet peas		635.937.138
Sweet potato		633.492
(G) (81)		
Switzerland		(494)
Sylvinite		631.835
effect on flax	633.52-	
Syria. Lebanon. Levant States		(569.1)
Taiga <i>See</i> Podzols		
Takyr <i>See</i> Solonets		
Tanganyika Territory		(678)
Tannery wastes as fertilizer	631.876.9 :	675.08
Tanning plants		633.879
(G) (676.2.9)		
Tasmania		(946)
Tau-saghyz ( <i>Scorzonera</i> )		633.913.36
Tea		633.72
(G) (47), (54)		
Teak		634.973.949
Tensiometer		631.425.24.005
Termites		632.732
effect on soil composition	631.416 :	
<i>See also</i> Insect pests		
Terracing <i>See</i> Contour cultivation		
Terra rossa		631.445.6
rock phosphate for	631.851 :	
(G) (437), (519)		
Texture <i>See</i> Mechanical composition of soil		
Thailand (Siam)		(593)
Thermal conductivity of soil <i>See</i> Soil temperature		
Thiocyanates		632.954.9
Thixotropy		631.414.2.025
Thorium		546.841
in plant nutrition	631.811.9 :	

# BIBLIOGRAPHY OF SOIL SCIENCE

Thyme	633.812.764
Tillage <i>See</i> Cultivation	
Tin in soil	631.416.881.1
Tir <i>See</i> Regur	
Titanium in soil	631.416.882.1
Tobacco	633.71
(G) (46), (492), (68.01), (689.1), (71), (713), (75), (77), (941), (945)	
Tomato	635.64
(G) (729), (75), (78)	
Top-dressing	631.816.23
of cereals	633.1-
.. grassland	633.2.03-
.. sugar beet	633.63-
.. wheat with nitrogen	633.11-1.84-
(G) (74) 633.2.03-, (931)	
Topography <i>See</i> Relief	
Town refuse	631.879.1
artificial humus from	631.878 :
(G) (68.01)	
Toxicity in soils	631.453
effect on brome grass	633.262-
in avocado orchards	634.653-
.. peach orchards	634.25-
.. rice soils	633.18-
.. solonchets soils	631.445.53 :
produced by flax roots	633.52-
soil micro-organisms and	631.461 :
sodium chlorate and	632.954.8 :
superphosphate and	631.855 :
zinc as a cause of	631.416.847 :
Trace elements <i>See</i> Minor elements ; Minor fertilizer constituents ; Minor metallic constituents of soil	
Tractors	631.37
Tree species	634.97
Trefoil. <i>Lotus</i>	633.374
Tropical and sub-tropical soils	631.445.7
<i>Aspergillus</i> method for	631.427.4 :
effects of burning	631.589 :
erosion of	631.459 :
grasses on	633.2-
land use and	631.47 :
management and farming of	631.58 :
<i>Melinis</i> grass for	633.283-
organic matter in	631.417 :
plant-physiological methods of	
analysis of	631.427.3 :
soil micro-organisms and	631.461 :
survey of	631.471 :
(G) (52), (94)	
Tsetse fly	632.77
Tulip	635.944

# FERTILIZERS AND GENERAL AGRONOMY

Tung ( <i>Aleurites</i> )		633.854.56
(G) (47), (51), (54), (564.3), (63), (689.7), (8), (941)		
Tunisia		(611)
Turkey, Asia Minor		(56)
Turmeric		633.861.3
Turnip		633.42
(G) (714)		
Typhus		616.927
soils in relation to	631.4 :	
Uganda		(676.1)
Ultraviolet light		535.61
effect on soil reaction	631.415.1 :	
Union of South Africa		(68.01)
United States		(73)
Urea		631.841.7
effect on rice	633.18-	
" " root rot of tobacco	633.71-2.4-	
" " tobacco	633.71-	
<i>Urena lobata</i>		633.524.33
Urine See Liquid manure		
Uronic acids in soils		631.417.747.45
determination of	631.423.4 :	
Uruguay		(899)
Vanadium		546.881
and molybdenum effect on		
azotobacter	631.461.51 : 546.77 :	
effect on nodule organisms	631.461.52 :	
in plant nutrition	631.811.9 :	
sodium chlorate and	632.954.8 :	
Vanadium in soil		631.416.888.1
Vanilla		633.821
(G) (72)		
Vegetables		635
effect of arsenate on	632.951.23 :	
experimental technique for	631.42 :	
pH range of	631.415.8 :	
(G) (54), (595), (667), (68.91), (713), (76), (942)		
Vegetation See Ecology		
Venezuela		(87)
Vernalization See Propagation of plants		
Vetch ( <i>Vicia</i> )		633.35
Victoria		(945)
Violets		635.938.422
Virus diseases		632.8
of potatoes	633.491-	
" sugar beet	633.63-	
" tobacco	633.71-	
" tomato	635.64-	



# BIBLIOGRAPHY OF SOIL SCIENCE

Vitamins	577.16
decomposition in composts	631.461.1/3 :
effect of fertilizers on	631.81 :
.. .. greenhouse plants	635.98 :
in cabbage as influenced by manuring	635.34-1.81 :
.. carrot as influenced by manuring	635.13-1.81 :
.. compost	631.875 :
.. herbage as influenced by manuring	633.2.03-1.81 :
.. orange .. .. minor	elements 634.31-1.811.9 :
.. plant nutrition	631.811.9 :
.. potatoes as influenced by manuring	633.491-1.81 :
.. .. .. .. potassium	633.491-1.83 :
.. soil	631.4 :
.. sweet potatoes as influenced by	manuring 633.492-1.81 :
.. turnip as influenced by manuring	633.42-1.81 :
.. manganese and	631.416.871.1 :
.. nitrogen fertilizers and	631.84 :
Viticulture	634.8
(G) (43), (54), (56), (73), (945)	
Vôi ( <i>Eugenia operculata</i> )	633.79
Volcanic ash, composition and fertility of	631.416 : 552.323
(G) (52)	
Volcanic rocks	552.323
fertilizer value of	631.822 :
soils formed from	631.48 :
weathering of	631.483 :
Volume changes See Density	
Volumenometer	631.425.1.005
Wales	(429)
Walnut	634.51
War	355.01
agricultural machinery and	631.3 :
drug production in	633.88-1.5 :
erosion and	631.459 :
grassland reclamation during	631.611 :
<i>Hevea</i> manuring and	633.912-1.81 :
manuring during	631.81 :
nitrogen fertilizers and	631.84 :
phosphate fertilizers and	631.85 :
pineapple manuring and	634.774-1.81 :
rye cultivation in	633.14-1.5 :
(G) (411)631.85 : (42)631.81 : (62)633.11-1.81 : (68.01)631.81 :	
(94)63 :	
Waste liquors and waters	631.877
Waste-pond phosphate	631.859
Water culture. Soilless cultivation. Hydroponics	631.548
of carnation	635.946.69-
.. greenhouse crops	635.98-
.. tomato	635.64-

# FERTILIZERS AND GENERAL AGRONOMY

Water-holding capacity of soil. pF. Moisture equivalent.		
Sticky point		631.432.4
base-exchange capacity and	631.414.3.03 :	
exchangeable bases and	631.414.324 :	
of organic soils	631.411.4 :	
soil moisture and	631.432.2 :	
Water hyacinth		632.556.7
as manure	631.871 :	
Water in plant nutrition. Water requirement of plants	631.811.91	
of carrot	635.13-	
.. cotton	633.51-	
.. flax	633.52-	
.. forage plants	633.2/3-	
.. lucerne	633.31-	
.. rice	633.18-	
.. sugar beet	633.63-	
.. .. cane	633.61-	
soil moisture and	631.432.2 :	
Waterlogging See Anaerobic conditions		
Water meadows		633.2.03-1.587
Water table See Ground water		
Wattle. Acacia See Tanning plants		
Weather See Climate		
Weathering		631.483
humus and	631.417.2 :	
in tropical soils	631.445.7 :	
phosphorus cycle in	631.416.2 :	
soil reaction and	631.415.1 :	
(G) (92), (969)		
Weedkillers		632.954
for bindweed	632.594.2 :	
use in carrot crops	635.13-	
.. .. cranberry bogs	634.76-	
Weeds		632.51
as plant indicators	631.415.7 :	
cotton tillage and	633.51-	
cultivation and	631.51 :	
in grassland	633.2.03-	
.. lawns	635.964-	
tea and	633.72-	
(G) (943)		
West Indies		(729)
Western Australia		(941)
Western United States		(79)
(California, Nevada, Oregon, Utah, Washington)		
Wheat		633.11
(G) (62), (676.1), (68.01), (77), (941), (942), (945)		
White clover. Ladino clover		633.322
Wildfire disease of tobacco		633.71-2.3
Wild-rye grass, Russian ( <i>Elymus junceus</i> )		633.28
for erosion control	631.459 :	

# BIBLIOGRAPHY OF SOIL SCIENCE

Wilting point of plants		581.032.3
determination of	631.425.22 :	
Windbreaks. Shelter belts. Shade trees		634.953.6
effect on soil moisture	631.432.2 :	
for tea gardens	633.72 :	
Wind erosion		631.459 : 551.55
effect of shelterbelts on	634.953.6-	
(G) (82)		
Wind injury	See Lodging	
Wireworms	See Insect pests	
Wood ash	See Ashes as fertilizer	
Wool		677.31
effects of grassland management on	633.2.03-1.58 :	
X-rays		537.531
clays and	631.414.2 :	
in soil analysis	631.423 :	
investigation of humus by	631.417.2 :	
" " weathering by	631.483 :	
of calcareous soils	631.411.2 :	
Yam ( <i>Dioscorea</i> )		633.685
Yeast		663.12
nitrogen fixation by	631.461.51 :	
Yields		631.557
effect of contour cultivation on	631.613 :	
" " cultivation on	631.51 :	
" " windbreaks on	634.953.6-	
erosion and	631.459 :	
estimation in sugar cane	633.61-	
soil fertility and	631.452 :	
" texture and	631.435 :	
statistical examination of	631.421 :	
(G) (941)633.11-		
Yugoslavia		(497.1)
Zanzibar		(678.1)
Zinc		546.47
and boron, effect on red clover	633.321 : 546.27 :	
deficiency in apple	634.11-2.19 :	
" " avocado	634.653-2.19 :	
" " cereals (and flax)	633.1-2.19 :	
" " conifers	634.975-2.19 :	
" " fruit trees	634-2.19 :	
" " grape	634.8-2.19 :	
" " mango	634.441-2.19 :	
" " peach	634.25-2.19 :	
" " pecan	634.521-2.19 :	

# FERTILIZERS AND GENERAL AGRONOMY

		546.47
deficiency in pineapple	634.774-2.19 :	
"    " tomato	635.64-2.19 :	
effect on flax	633.52 :	
"    " soybeans	633.34 :	
"    " wheat	633.11 :	
in fertilizers	631.81 :	
" plant nutrition	631.811.9 :	
Zinc in soils		631.416.847



